D1.4

A catalogue of good RRI practices

Frank Kupper, Pim Klaassen, Michelle Rijnen, Sara Vermeulen, Remco Woertman and Jacqueline Broerse

Athena Institute, VU University Amsterdam

Document description

Document Name	A catalogue of good RRI practices
Document ID	D1.4
Revision	1.0
Revision Date	29-06-2015
Authors	Frank Kupper, Pim Klaassen, Michelle Rijnen, Sara Vermeulen, Remco Woertman, and Jacqueline Broerse

Table of Contents

1 Introduction

The goal of this catalogue is to provide concrete guidance on how RRI can be put into practice. Accordingly, at the heart of this document is a compilation of descriptions of good RRI practices. These have been selected from a larger collection of so-called *promising* practices that had been brought together in the RRI Tools project through a consultation round with stakeholders in research and innovation held by RRI Tools consortium partners from all around Europe.

This catalogue constitutes one of the tools for the toolkit that RRI Tools is developing. The goal of the catalogue to instruct stakeholders in research and innovation (R&I) provided us with part of the rationale for including practices in this catalogue. That is to say, it could be argued, when looked at from the conceptualization of RRI developed in the RRI Tools project (see D1.1 and D1.3), that many of the practices in this catalogue could still be improved upon. Nevertheless, they all deserve their place in this catalogue insofar as they provide inspiration to others who work in research and innovation on how to put into practice one or more aspects vital to RRI. Aspects that matter in this regard are rather wide-ranging. They include the requirements that R&I processes should fulfil to promote responsibility, various types of outcomes characteristic of responsible research and innovation, the policy agendas that the European Commission has identified (Ethics, Gender, Governance, Open Access, Public Engagement, and Science Education), and the Grand Challenges that have likewise been singled out by the European Commission (in short, Health, Food security, Energy, Transport, Climate, Europe in a changing world and Security).

Analysing research and innovation practice descriptions taught us what RRI could look like in practice, but more general lessons emerged from this analysis as well, transcending what we can learn from individual practices. Such lessons concern not only what goes well in the field of RRI, but also provide us with indications of work to be done for the RRI Tools consortium following up on weaknesses or gaps in this collection of good RRI practices. Concretely, our analysis showed that in several respects the selection of practices presented here could be improved upon. Our inventory was not exhaustive; we did not look at all existing or finished R&I practices—this would not have been feasible. Instead, we built this catalogue using the building blocks brought together through a round of stakeholder consultations and contributions of our Hubs (see annex 1 for a full list of Hubs).

Before presenting the good practice summaries of this catalogue, a number of preparatory and analytical steps are taken. First, chapter 2 gives a description of our methodology of collecting promising practices and filtering out good practices from among these. Next, chapter 3 provides a range of descriptive statistics regarding the selected practices (3.1), as well as more in-depth analyses relating to both processes (3.2.1) and outcomes (3.2.2). In chapter 4, then, we reflect on the collection of practices brought together here. Attention is paid both to relevant lessons when trying to understand what RRI *means*, as well as to weaknesses and gaps in the collection of good practices this catalogue contains. Also the role of this catalogue in the RRI Tools project is discussed here. Chapter 5, finally, presents the descriptions of good RRI practices people can turn to for concrete inspiration on how to implement RRI, or one or another aspect thereof.

2 Methodology or the road to the catalogue

In this chapter we describe the methodology used to develop the catalogue. The methodology comprised four phases: (1) collection of promising practices; (2) selection of promising practices; (3) filling in the online survey; and (4) selection of good practices. Each phase is described in more detail below.

Phase 1: Collection of promising practices

During the RRI Tools meeting in Copenhagen (June 2014) the plan for the development of the catalogue of good practices first saw the light (Figure 1). A training for Hub members on RRI took place there, and it was decided that as part of the work to be done towards the organization of the Stakeholder Consultation Workshops that were planned for months nine and ten of the project, all participants in these workshops would be given a question sheet in which they were prompted to suggest what they conceived to be a promising practice in doing RRI (step 1 in flowchart). In addition, the Hubs were asked to seek promising practices as well and fill in the question sheets for these practices themselves (step 1 in flowchart, and see annex 1 for a full list of Hubs). In this phase the practices were referred to as being 'promising practices' rather than 'good practices', as this was the first phase in composing the catalogue and we were still in the process of delineating what it means to put RRI into practice.

Thus, the first substantial step in the direction of the compilation of this catalogue of good practices in RRI was taken by the coordinators of the 26 Hubs that took part in the RRI Tools project. After they had invited participants in the Stakeholder Consultation Workshops, all of whom were representatives of one or more of the five different stakeholder groups identified within the RRI Tools project (i.e., research, policy, business and industry, civil society organization and education), to suggest a good practice, they made a selection of about ten RRI practices that were described in some detail and sent to Athena.

Phase 2: Selection of promising practices

In the next stage in the process three to five practices from each Hub were selected, all of which were to be analysed more thoroughly using an online survey (step 2 in flowchart). To this end the Athena Institute analysed the descriptions of the promising practices sent in and discussed these with the Hub coordinators who had made the initial selection. The selections were then made in dialogue between the Athena Institute and all the individual Hubs.

At the basis of the selection process were various considerations. First of all, the working definition of RRI as presented in D1.1 was used. Hence, insofar as the descriptions of the practices shed light on this, it was investigated whether or not one or more of the process requirements had been met and whether or not one or more of the outcomes had been achieved. The aim was not to include only practices which met *all* process requirements and/or that had obviously led to *all* of the outcomes that had been identified in D1.1. Not only would this have left us with almost empty hands, it is also not necessary for a practice to deserve a place in this catalogue of good practices in RRI. The idea is that each of the practices collected in the catalogue offers an example concerning one or more vital aspects of RRI, but not necessarily on all aspects.

In addition, the selection process was based on the goal of reaching an optimal diversity with respect to

a) grand challenges covered (i.e., 1. Health, demographic change and wellbeing, 2. food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bio-economy, 3. secure, clean and efficient energy, 4. smart, green and integrated transport, 5. climate action, environment, resource efficiency and raw materials, 6. Europe in a changing world – inclusive, innovative and reflective societies, and 7. secure societies – protecting freedom and security of Europe and its citizens), and
b) types of practices (i.e., tools, programs, projects and organizations). Even more than selecting on the conceptual grounds offered by the RRI Tools working definition of RRI, this proved to be not an easy task. Some grand challenges were already relatively over- or underrepresented in the initial selection of 208 practices, and there was also no equal distribution of types of practices.

Phase 3: Filling in the online survey

After the selection was performed, the Hubs filled in the online survey for the selected practices using SurveyMonkey. The design of the survey was based on the working definition used in the RRI Tools project. Next to some basic practical questions about the practice, the questions of the survey were meant to reveal the RRI potential of the practice, including questions regarding the relation between the practice and the policy agendas (i.e., ethics, gender, governance, open access, public engagement, and science education) and to gather in-depth information about RRI put into practice. In many cases Hubs used the survey as an interview guide and filled in the questions with the direct help of people involved in the specific practices (see annex 2). The survey was open from January 26th till April 30th 2015, during which 51 completed surveys were received.

Phase 4: Selection of good practices

To analyse the data on the practices collected through the survey, the steps detailed below were followed. To minimize researcher bias, first the four researchers were trained following these steps for four different practices. Subsequently, the analyses were checked by another team member. In case of disagreements, the analyses were discussed until the researchers could agree on a shared interpretation.

During the analysis of the 51 received and completed surveys, the project details of the practices were ordered in a table: name of the practice, leading organization, country where practice is implemented, language in which information about the practice is available, starting date, (expected) end date, and type of practice. Next, the good practices were assessed with regard to

a) each of the four pairs of process requirements (i.e., inclusion & diversity, openness & transparency, anticipation & reflection, and responsiveness & adaptive change) and
b) the outcomes (i.e., learning outcomes, R&I outcomes, and solutions to societal challenges).

The quality criteria formulated for the process requirements in D1.3 were used as a basis for the first part of this assessment. Every criterion of the process requirements received a mark: business as usual, on its way, promising, good, or exemplary. This mark was checked by a second researcher and, in case of variances between the two researchers, mutually discussed. Secondly, the three types of outcomes were valued in a similar way: absent, formulated in the aims, explicitly addressed, reached, or evaluated. In most cases, the input for this part of the assessment was directly provided in the filled in surveys.

Based on the assessment, decisions were made about which practices to include in the catalogue. The decision of including or excluding a practice was mainly based on:

1) how well the process requirements are executed (note: if the practice scores high on merely one process requirement, it could still be useful for the catalogue, especially for the 'lessons learned' chapter),
2) if it (aims to) contributes to solutions for grand challenges, the learning outcomes and the R&I outcomes,
3) the extent to which it addresses both the research and innovation component of RRI, and
4) the level of information available (in some cases this relates to the advancement of the practice in the R&I process).

These four points were discussed for each practice between researchers of Athena. This resulted in the exclusion of 20 practices out of 51. A list of excluded practices[1] is available in Annex 3.

Catalogue of good practices

The 31 included practices can be found in Table 1. In Chapter 5 short summaries of each practice are provided as well as the project details, the most interesting lessons learned, its relation with policy agendas, grand challenges, and process requirements, and information about the outcomes of the practice. The texts and information presented in the catalogue have been approved – in some cases after small rectifications – by the Hub leader and someone involved in the specific good practice.

[1] Hubs have the opportunity to contact Athena Institute to discuss the reasons for excluding these practices, in order to improve our mutual understanding of what RRI (should) looks like in practice.

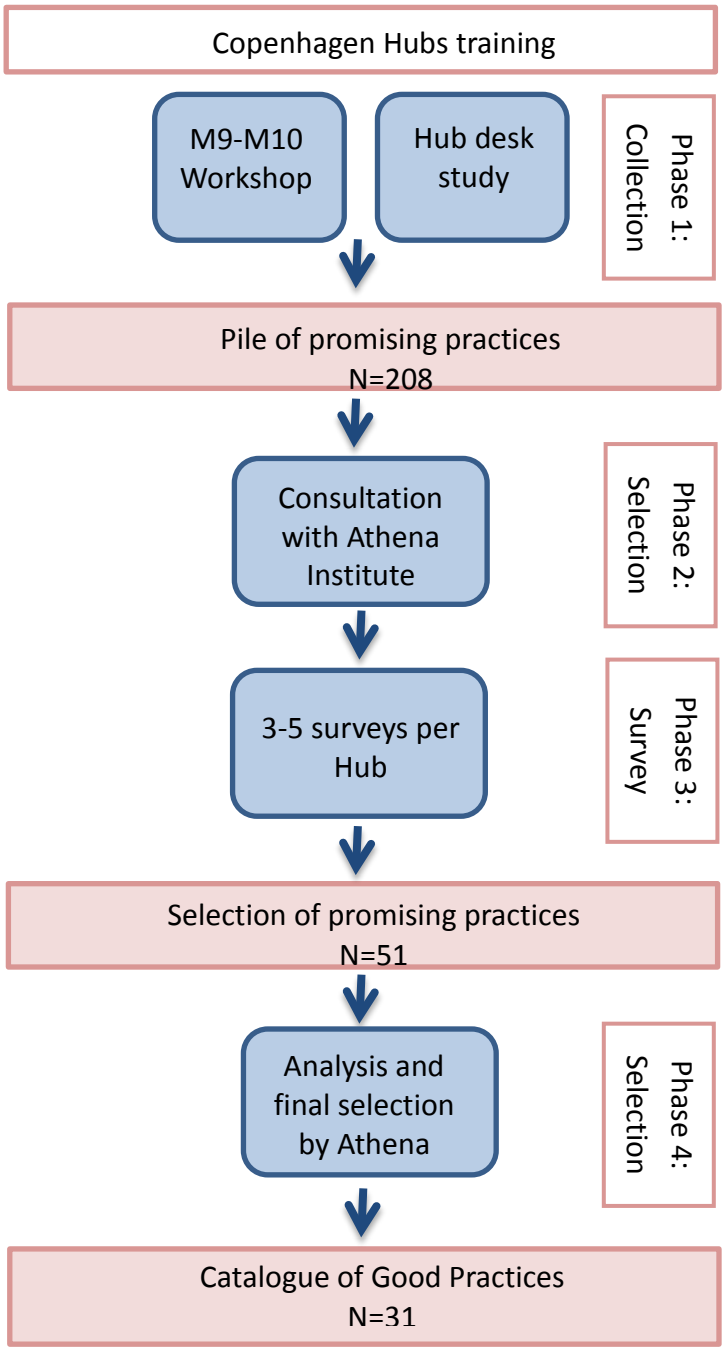

Figure 1: Flowchart of the collection of good RRI practices

Table 1: Table of contents practice descriptions

GC: Grand Challenge(s) addressed	**PA** : Policy Agenda(s) addressed	**PR:** process requirement exemplified
1 = Health, demographic change and wellbeing; 2 = Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bioeconomy; 3 = Secure, clean and efficient energy; 4 = Smart, green and integrated transport; 5 = Climate action, environment, resource efficiency and raw materials; 6 = Europe in a changing world - inclusive, innovative and reflective societies; 7 = Secure societies - protecting freedom and security of Europe and its citizens.	ET = Ethics GV = Governance SE = Science Education OA = Open Access GE = Gender PE = Public Engagement	D&I = Diversity and inclusion O&T = Openness and transparency A&R = Anticipation and reflexivity R&AC = Responsiveness and adaptive change

3 Analysis or finding one's way in the catalogue

This chapter provides an overview of the analysis of the collection of good RRI practices assembled in the RRI Tools project through the program SurveyMonkey, with the help of all our partners. It consists of two parts: in the first part some basic facts about the practices collected are presented, while the second part discusses patterns in lessons learned from the practices at hand.

3.1 The facts about the collection of practices

3.1.1 Types of practices

We received 51 completed surveys from 18 European countries within the time span of about three months and have selected 31 for the catalogue. The practices were divided in four categories: tools, projects, programs, and organisations. Although we aimed to find good examples of all four types of RRI practices, we did not find an equal spread among the different types. The vast majority of practices that were submitted were projects (19), followed by organizations (4), programmes (6) and tools (2) (see Figure 2). The majority of 'projects' is not surprising perhaps, since RRI may be easier to implement at a moderately small-scale, concrete (project) level, before having gathered enough knowledge and skills about RRI in order to move on to organizational and governance level. The latter, of course, is required for organisations and programmes. At the same time, it most likely takes a long-term focus to implement RRI in organisations and programmes, as this entails learning not only at individual but also at system level. The smallest number of good practices was found in the category tools for RRI. Reasons for this might be that people had not focused on tools during the collection phase or that tools seemed less interesting for this catalogue, because they often have very specific goals and do not address all process requirements and/or outcomes of RRI. In this catalogue only innovative ones are included.

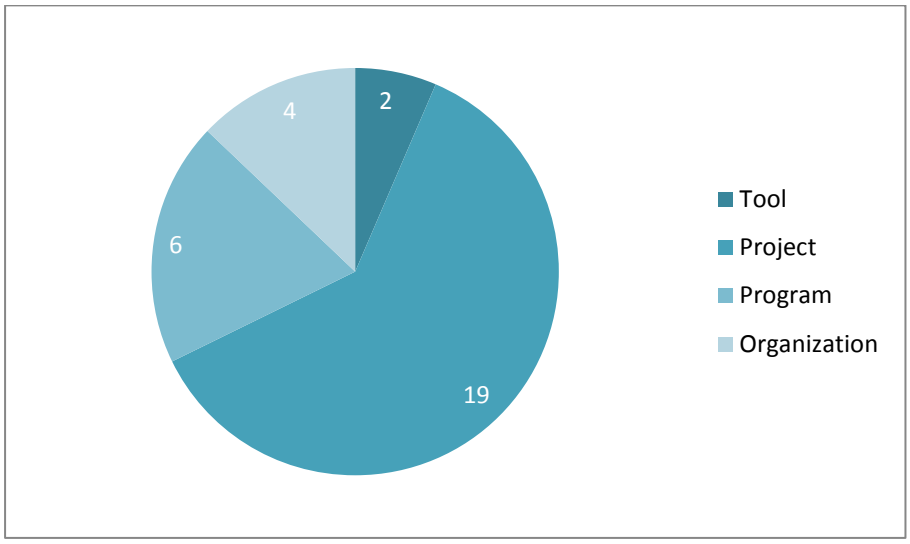

Figure 2: Selected practices – 31 in total

3.1.2 Geographical scale of practices

Most of the 31 good practices are executed on a national scale (17). Other practices have a more local or regional (4), European (7), or even global (3) focus or aim. Figure 3 below shows the number of practices in relation to the focus on geographical scale.

Of the ten practices with an aim to operate on a European or international scale, only three have been included with the label 'European practices' in the catalogue of good practices (Chapter 5). The reason behind this is that these three practices truly operate on a European scale (and often have a European steering group), whereas the others have the aim to operate on such scale but are not quite there yet. Many of them are set up in two or three countries and operate in not many more. Therefore, these practices have been placed in the catalogue within the chapter of the country that initiated the practice.

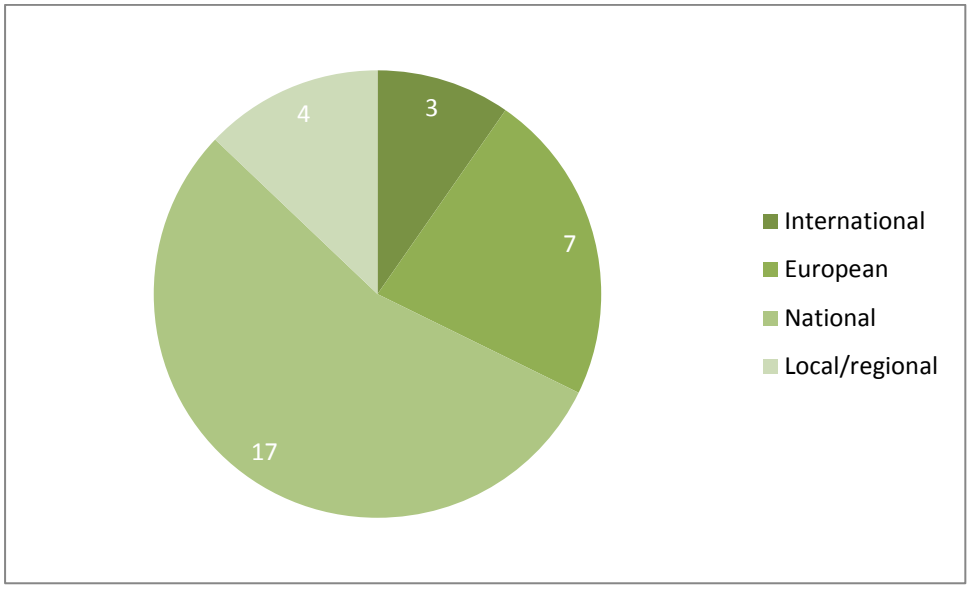

Figure 3: Geographical scale in absolute numbers

3.1.3 Policy agendas addressed in the practices

Most of the surveys indicated that the practices address more than one policy agenda (see Figure 4). It is striking that almost all of the practices focus on public engagement –87% of the 31 practices– and more than half of the practices focus on science education –55% of the practices. Both governance and ethics are addressed in about half of the practices (48%), whereas open access is addressed in 39% of the practices and gender only in 19%.

It is not easy to explain these differences, as there are many practices actively addressing these policy agendas in Europe, because the EC views them as key issues in RRI. It could be that there is some selection bias within the consortium, as many of the project partners are active themselves in

public engagement activities and science education. As such, they have a stronger network in and more knowledge of these areas. Still, the consortium received many suggestions of good practices during the stakeholder workshops during which people of all five stakeholder groups were present. Furthermore, as gender is visually underrepresented in the practices it is interesting to investigate why this is so. It could mean that these practices are not sensitive of gender issues, but this is not necessarily the case. It could be that practices do not explicitly address gender issues – in their aims and strategies for example – and therefore did not write this down in the survey.

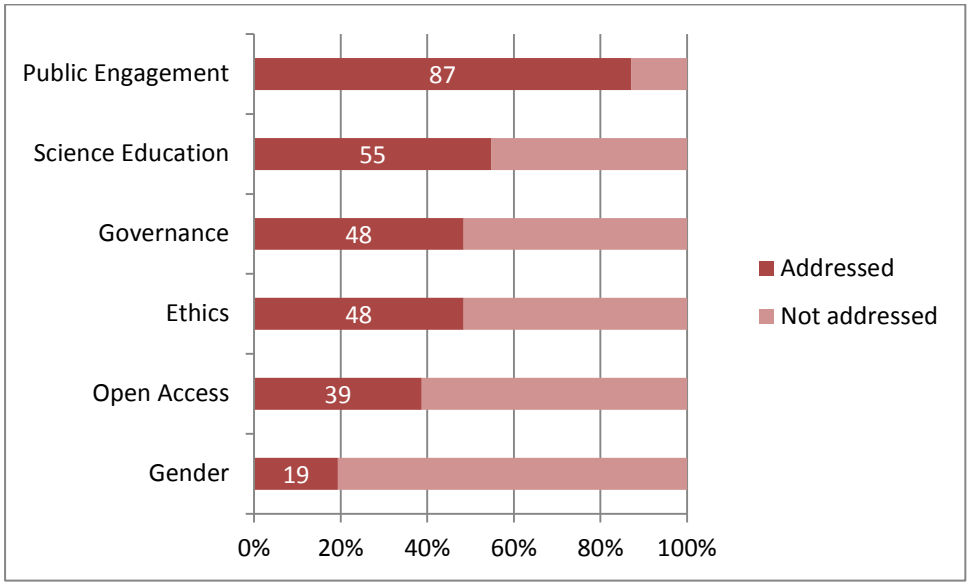

Figure 4: policy agendas addressed in percentages (out of 31 practices)

3.1.4 Stakeholders included in the practices

Figure 5 shows how many of the 31 selected practices involve each of the five stakeholder groups during the entire course of the practice in percentages. The chart shows a rather equal participation among these groups, which can be an indication that the practices of the selection are well on their way to becoming RRI when it comes to including or engaging a variety of stakeholder groups. The results displayed in Figure 5 correspond to our third selection criterion, which indicated that the practice should contain both research and innovation components, in the way that 97% of the practices have involved researchers.

When analysing what types of stakeholders lead the selected practices, a similar observation can be made (Figure 6). In half of the practices at least one of the leading organisations is categorized as being part of the research community. Although relatively often involved in the exploratory stage of R&I (Figure 7), Figure 6 shows that policy makers do not lead many practices (10%). Business and industry are one of the leading organisations in 16% of the practices, CSOs in 13%, and education in 11%.

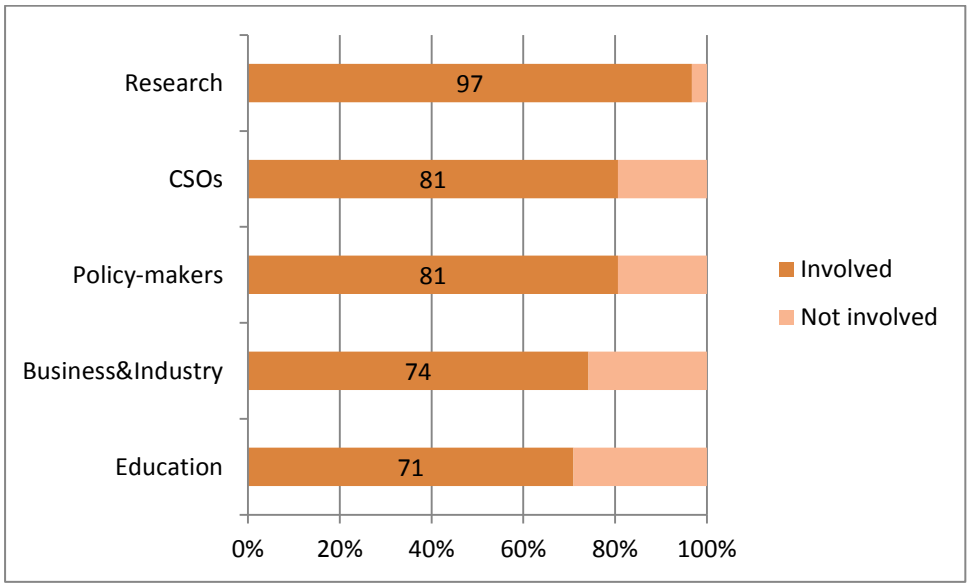

Figure 5: stakeholders involved in practices, shown in percentages

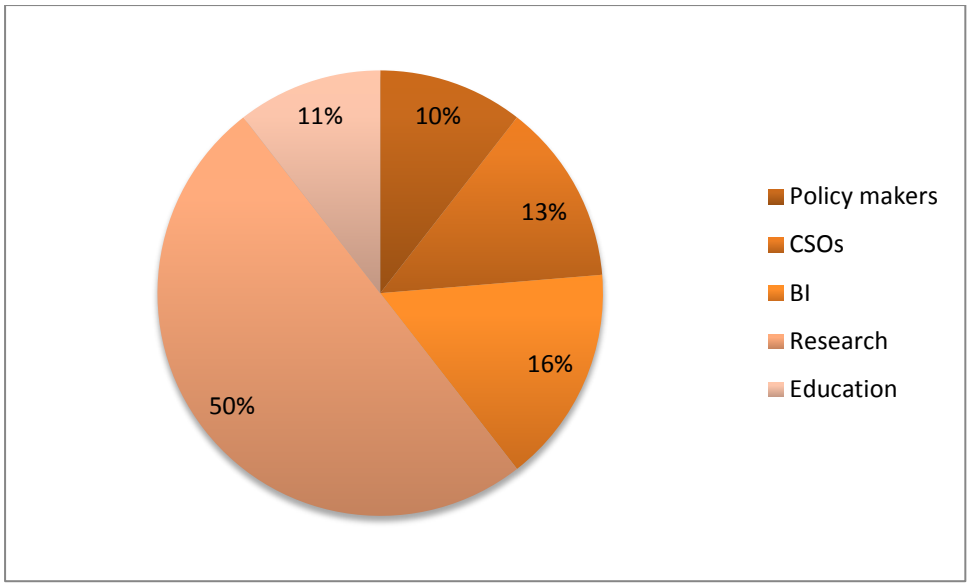

Figure 6: Overview of the stakeholder types that lead the selected practices, shown in percentages

When splitting the R&I process into four stages – exploration, development, implementation, and evaluation – it becomes apparent during which moments the stakeholder groups were involved in the practice. This information is visualized from the perspective of each of the stakeholder groups in Figure 7. Figure 8 displays the same information but from the perspective of the R&I phase, showing how many practices included which of the stakeholders per phase. Indeed, these graphs indicate that researchers are in most cases involved in the entire R&I process, but business and industry and the educational community are far less represented. Furthermore, the involvement of all of the stakeholder groups declines noticeably in the evaluation phase.

Although providing an overview of the involvement of different stakeholders in R&I processes, these graphs do not give any information regarding *how* stakeholders were involved. Answering this question will require a more qualitative and descriptive approach.

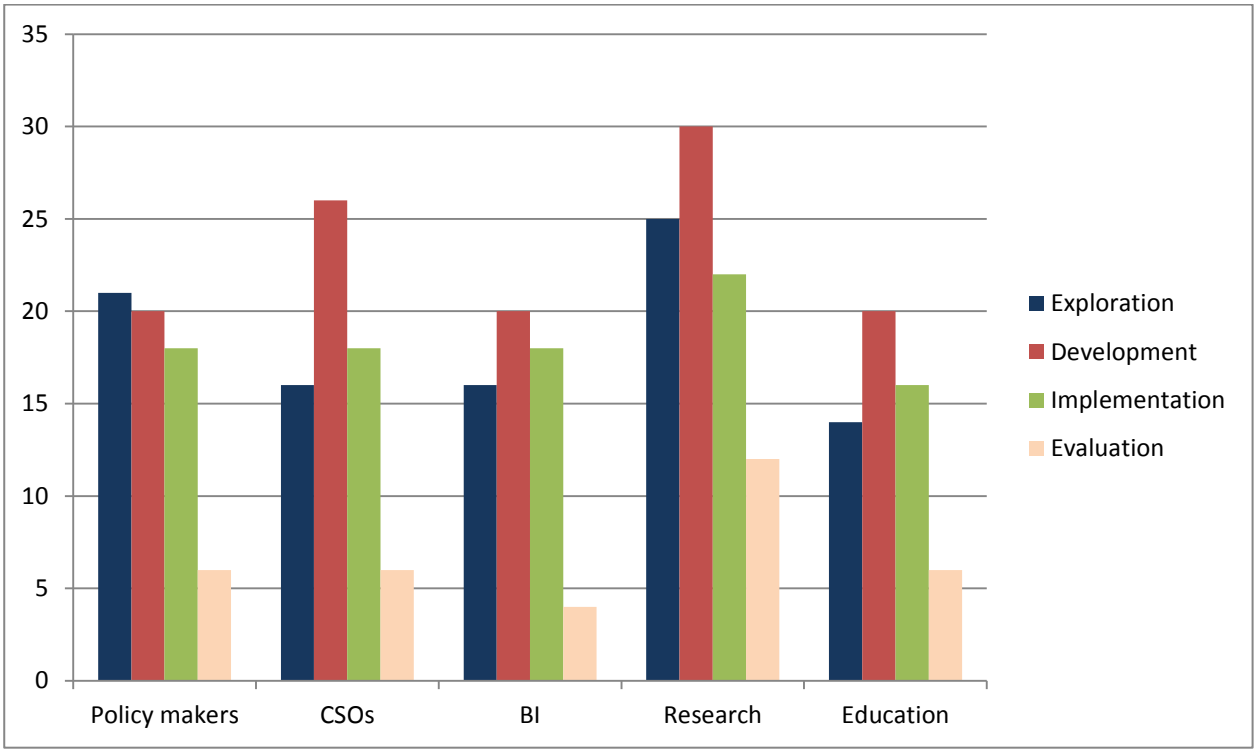

Figure 7: the involvement of stakeholders in the different research and innovation phases per stakeholder group, shown in percentages

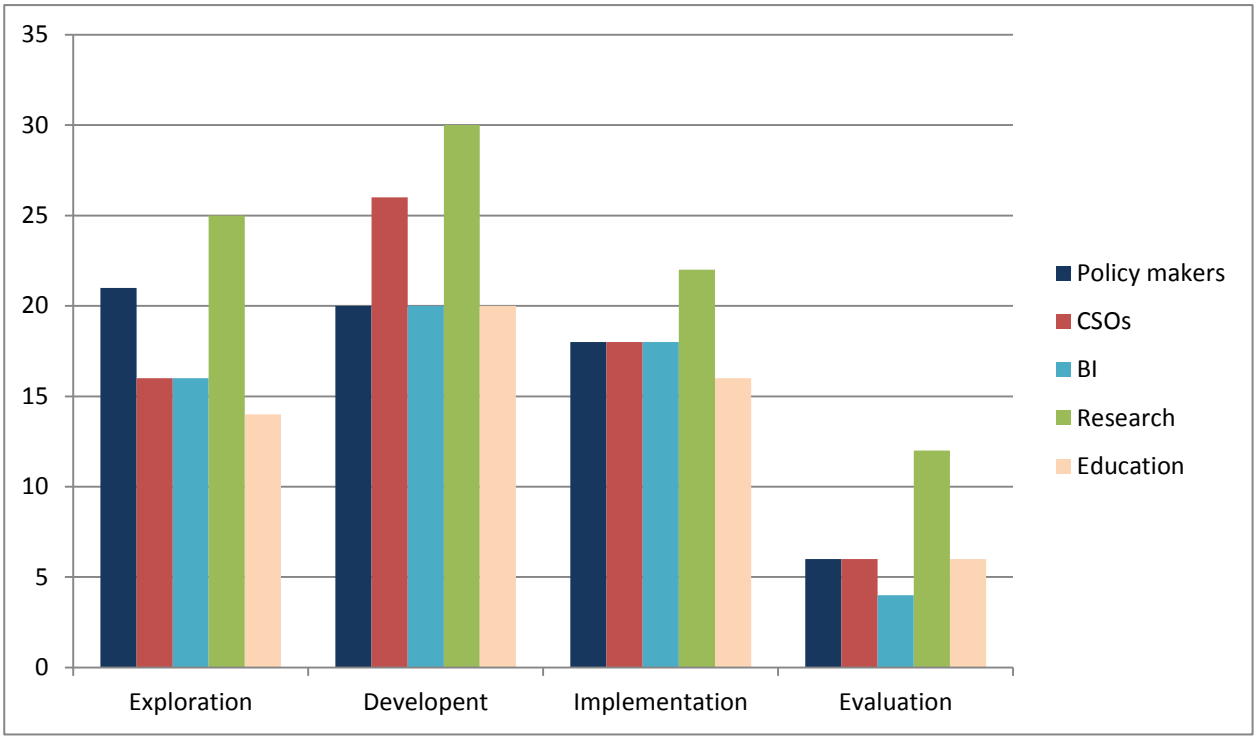

Figure 8: the involvement of stakeholder groups per research and innovation phase, shown in percentages

3.1.5 Grand Challenges and research theme

As RRI practices should contribute to solutions for social needs, many of them address one or more of the seven Grand Challenges formulated by the European Commission and specified in Horizon2020:

1. Health, demographic change and wellbeing
2. Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bio-economy
3. Secure, clean and efficient energy
4. Smart, green and integrated transport
5. Climate action, environment, resource efficiency and raw materials
6. Europe in a changing world - inclusive, innovative and reflective societies
7. Secure societies - protecting freedom and security of Europe and its citizens

Figure 9 below shows which of the Grand Challenges are addressed by the selected practices. Although the attempt in the first selection round was to make a selection that would include all grand challenges, some of them are underrepresented in the final selection. The selection contains less practices that aim to contribute to the third Grand Challenge (energy; 2), to the fourth (transport; 2), and to the seventh (secure societies; 1) challenge. The majority addresses the first challenge (health; 8), the fifth (climate; 9), and the sixth (changing world; 14). The sixth Grand Challenge is quite an extensive category and many of the practices could be placed there, as RRI aims for inclusive, innovative and reflective societies.

Many practices that aim to contribute to Europe in a changing world are programmes or organisations that can potentially address many of the other Grand Challenges, as they often support projects (or organisations) that have more specific goals, such as clean energy, for example. Here they are classified as contributing to the sixth Grand Challenge because their expertise lies in guiding the process rather than finding solutions for specific problems as formulated within the other challenges. Examples of these practices are *CDI*, *Inno+*, and *SoScience*.

Furthermore, two of the practices specifically address an important goal that is not formulated explicitly as Grand Challenge or within one of the challenges: both *Inno+* and *CDI* mention that they contribute to a digital information society.

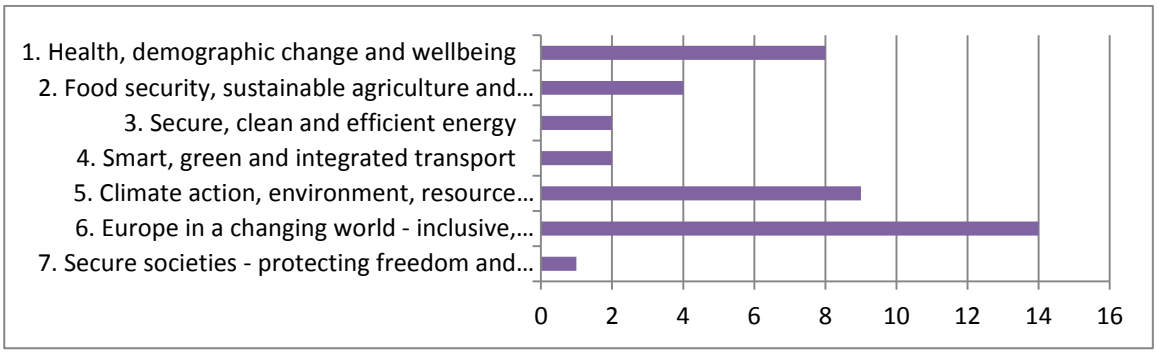

Figure 9: Grand challenges addressed by the 31 selected practices

3.2 Digging below the surface: what do we learn from these practices?

This document's main aim is capacitating people working in or on R&I to learn from what others have been or are currently doing, such that it sets their work in R&I apart as *responsible*. As is to be expected, and as is clearly visible in the descriptive statistics above, not every practice can be used to exemplify all that is distinctive of RRI. Some practices might be exemplary with respect to tackling one particular Grand Challenge, some practices with respect to another. And some practices might showcase how one policy agenda can be promoted, while others further entirely different policy agendas—and so on. Table 1 already provides an overview of the presence of some of the elements central to RRI in the practices listed below in Chapter 5. In this sub-section, however, we offer some more in-depth guidance as to what practice one could inform oneself about, depending on what it is one is looking for.

Thus, we have analysed the practices with an eye to several different dimensions. That is to say, we have looked at the degree to which practices are in tune with the different component parts of the working definition of RRI developed in D1.1 of the RRI Tools project, process requirements and outcomes. Accordingly, in section 3.2.1 examples are given of practices illustrating each of the couples of process requirements (diversity and inclusion, openness and transparency, anticipation and reflection and responsiveness and adaptive change).

Following this logic it would make sense also to analyse the practices with regard to all different types of RRI outcomes distinguished in the working definition of RRI (i.e., three types of learning outcomes, three types of R&I outcomes, and seven grand challenges the resolution of which practices might work towards; see D1.1). For a number of reasons, however, the part of our analysis based on outcomes is not this fine-grained. To begin with, the data on the outcomes of the practices are far from homogenous, for instance because different practices are in different phases of the R&I process. Some practices have only just begun (*SoScience*), whereas others are half way (*Xplore Health*), and yet others have already finished (e.g., *Knowledge for Climate*). Furthermore, given the wide variety of research themes, grand challenges and/or policy agendas covered by the collection of practices, the outcomes of these practices are not readily comparable.

For these reasons, the outcomes play their role here in a different way, as will be elaborated below in section 3.2.2. The focus there, then, is on outcomes relating to clusters of aspects of practices that can be identified independently from estimations of the degree to which practices manage to contribute to solutions for tackling Grand challenges. Concretely, examining the practices with the question in mind what it is that we and others can learn from these practices, an additional classification emerged of what it is that we do when we do RRI. This classification builds first and

foremost on practice outcomes. Concretely, practices prove to be classifiable as being inspirational from the perspective of RRI either with regard to the *governance* of R&I, the *doing* of R&I, and the *learning* that takes place when doing RRI. (To be sure, these are not exclusive categories: in theory one practice might be exemplary in more than one of these respects.)

3.2.1 Process requirements

In this sub-section each of the clusters of process requirements is discussed, featuring three examples of each of them to illustrate what a strong example can look like—*can*, as the concrete implementation of each of the process requirements might call for different things in different contexts. Before taking a closer look at the process requirements in relation to the selection of good practices presented in this catalogue, one remark is in place. Our main aim in presenting these practices is to give a feel for the variety existing in good practices of RRI illustrative for each of the process requirements. That is to say, insofar as possible we have attempted a form of maximum variation sampling, including practices from the entire range of types (projects, programs, organizations and tools), focusing on a maximum variety from among the grand challenges aimed at, and working from various research fields.

Diversity and Inclusion

Making R&I processes more diverse and inclusive can entail a wide variety of things. It for instance includes promoting diversity and gender equality on the shop floor, but also engaging a wide variety of stakeholder groups and a variety of methods for stakeholder engagement and for the engagement of publics, as well as directing attention to a variety of possibly appropriate R&I models and methods. For different reasons each of the following three practices is particularly inspiring in terms of diversity and inclusion:

1. **Diversity in the computer game industry – project**
2. **HAO2 – organization**
3. **KlimaAlltag – project**

The project *Diversity in the computer game industry* strongly manifests the aim of increasing diversity (including gender, ethnicity, sexuality and function) in the computer games industry sector. The computer game industry is a sector usually associated with the stereotypical user of young white males. The project is inspiring for all it does to reach its aim to make this industry more inclusive, as well as more reflective and innovative, and to promote the inclusion of diverse research topics. *Diversity…* promotes inclusivity not just by looking at different target groups, but also by diversifying portfolios and perspectives. This transpires from the fact that the entire game sector is considered and that collaborations are sought with representatives from that sector. Working in an interdisciplinary manner and using a 'practice analysis' research method that operates on micro,

meso and macro levels also is conducive to its goals. Even if this project stands out mostly because of its efforts regarding diversity and inclusion, in fact it shows how all aspects of RRI can help bring about change in a business sector and, ultimately, perhaps on a broader societal scale too.

HAO2 is a strong example of an organization, a business company in fact, that structurally implements a thoroughgoing diversity policy to achieve effective and profitable products. HAO2 promotes the inclusion of individuals who are often excluded from employment, such as people suffering from autism. HAO2 promotes diversity in its internal organizational culture HAO2, for instance by enabling such ordinarily readily excluded employees to enter the workplace by using training (for example on communication skills, team work or interview skills). Furthermore, the diversity on the HAO2 shop floor is made the most of as it plays into HAO2's development of innovative products that benefit users and improve their quality of life. Illustrative of this is the 3DNovations Hub, which is developed *by* and *for* people with autism, and which is aimed at local authorities or partnerships that want to create more vocational training and employment opportunities for people with autism.

The research topic for the project *KlimaAlltag* concerns low-carbon lifestyles. It exemplifies how a variety of different perspectives can be included in research and innovation practices, and what benefits this can have for the quality of the results. The inclusion of perspectives was realized by involving representatives of different stakeholder groups in the project (researchers, citizens, municipal enterprises, and community service organisations). Participant recruitment for a part of the project was based on socio-demographic and socio-structural characteristics and target quotas for gender, income level, life stage, household structure, migration background and current environmental commitment. Moreover, including the perspective for instance of households was done throughout the project and led to unforeseen results. *KlimaAlltag* also illustrates how inclusive practices can adapt their course in response to intermediary results.

Openness and transparency

By openness and transparency we mean the honest and clear (re)presentation of practice details, open and clear communication about the processes of deliberation and decision-making, about the results of the practice and the appropriate means of communication and education per stakeholder group, as well as openness to critical scrutiny from all stakeholders. The following three practices are used to illustrate what openness and transparency can mean in practice:

1. **Citizens create knowledge (BürGEr schaffen WISSen, GEWISS) – project**
2. **The Blueprint for Change Programme – program**
3. **Economic valuation of services and governance of coastal and marine ecosystems - project**

Clear communication and presentation of information is something that is strongly implemented in the *Citizens create knowledge* (BürGEr schaffen WISSen, GEWISS) project. The fact that stakeholder groups have access to goals, procedures, expectations, progress and research data through the GEWISS online platform adds to building trust between citizens, stakeholders and scientists. Communication about results of events is managed through online availability via the German National Library. Information tailored to the public or specific stakeholder groups is disseminated through activities and academic and lay publications.

The Blueprint for Change Programme offers another example of openness and transparency. The goal of this program is to create transparency and to communicate Novo Nordisk's values and working processes. A clear and understandable explanation of the programme and the process leading to it can be found on the company's website. Short pamphlets and movies as well as more thorough reports inform stakeholders about all cases studies done as part of this program.

In the project *Economic valuation of services and governance of coastal and marine ecosystems* stakeholders not only have access to all project information, including research data, but information is also tailored to the audience through different avenues for releasing findings. For various audiences these results are written in non-technical language that is suitable for the intended users. Furthermore, this sense of openness borders on the process requirement of inclusivity, as in this project also "non-expert" participants are included as authors of the deliverables.

Anticipation and reflection

Anticipation and reflection in research and innovation entails drawing attention to possible impacts of science and technology and reflecting on and incorporating stakeholder and public values. This requires analyses of backgrounds, situations and contexts, and deliberations on values, perceptions, needs and interests of the problem at issue in the practice. The following three projects are exemplary for this cluster of process requirements:

1. **VOICES (Views, Opinions and Ideas of Citizens in Europe on Science) – project**
2. **Fundación Ibercivis – organization**
3. **Homoresponsabilis in the Globalized world – tool**

From the first project exemplary of anticipation and reflection, *VOICES* (which stands for Views, Opinions and Ideas of Citizens in Europe on Science), we can learn how to organise anticipation and reflection in relation to the complex issue of waste management. *VOICES* presents a very inclusive practice in which research priorities were set, based on processes of anticipatory and reflective deliberation with citizens, using focus groups. This method provided in-depth insight into experiences, values, wishes and concerns of participants and stimulated shared creative thinking.

The second exemplary practice in this regard is the *Fundación Ibercivis*, an organization that has, for instance, funded over 40 participatory experiments that involved more than 50 000 volunteers in total in projects concerning a wide variety of research fields. It stands out in relation to anticipation and reflection by showing how flexible management and collective decision-making processes can help anticipate possible consequences. *Ibercivis* sees itself as continuously challenging itself and trying to push things forward in new, unexpected ways. Among the many products it has brought forth, the public forum *Future Innovators Summit* can be singled out here as an inclusive event that promotes reflection that helps refine ideas and plans.

The last exemplary practice in this category is the tool *Homoresponsabilis in the Globalized world***.** It demonstrates a playful way to rethink current values and ways of doing business. It is a gaming method for reflexive processes, teaching future managers and entrepreneurs the importance of considering the needs of all stakeholders in business decision-making processes. Though related to existing teaching methods and tools, the game is an alternative way of building youths' knowledge and skills in business ethics, open communication, corporate social responsibility, and business decision-making processes.

Responsiveness and Adaptive Change

Responsiveness and adaptive change in R&I requires that the direction people, organizations and practices take have the opportunity and prospect of adapting in response to changing circumstances, values, ideas and needs, both of stakeholders and the wider public. Criteria to foster responsiveness and adaptive change, for instance, include providing a structure for seeking and incorporating feedback, flexible process management, development and implementation of evaluation strategies, flexible attitudes to revise views and actions, shifting responsibilities, and application of results. Three practices are identified again to illustrate what this can mean in practice:

1. **Xplore Health - project**
2. **Knowledge for Climate (Kennis voor Klimaat) - program**
3. **Social Innovation Factory - organization**

The first exemplary practice with regard to responsiveness and adaptive change, the project *Xplore Health*, teaches us more about how to respond to the input of participants in educational programmes. *Xplore Health* is a European educational programme that offers participative multimedia and various types of hands-on resources. It aims to make the gap between health research and education smaller and does so by promoting inquiry-based science education (IBSE) and student interaction with different social actors. *Xplore Health* stimulates students to become deliberative citizens who further RRI in the knowledge society. It is run through the internet, schools, research centres and science museums. In response to student topic choices, *Xplore Health* is

adapting its course, by beginning collaborations with different stakeholders. Furthermore, it is also facilitating the application of methodological changes based on student input.

The second example for responsiveness and adaptive change is *Knowledge for Climate*. This was a Dutch research program aimed at the development of applied knowledge concerning the impacts of climate change. It entailed cooperation between the Dutch government, the business community and several scientific research institutes. The involvement of this "triple helix" of stakeholders was meant to ensure that long-term decision-making would consider the impacts of climate change. *Knowledge for Climate* displays how stakeholder's feedback can be incorporated on various levels, ranging from the programme committee, to regional hotspot coordination and research projects engaged in under this program. Stakeholders were expected to actively contribute to learning processes and were in this way engaged in co-constructing R&D agendas. This simultaneously helped the variety of stakeholders engaged to become aware of other actors' perspectives. Some projects led to direct changes in policy schemes or to the creation of concrete building projects. Although there was no direct involvement of societal stakeholders in addition to government, science and business, external pressures were considered. Knowledge co-creation aids effective research practice, increases understanding of each other's values and disciplinary knowledge, and encourages network building and inclusiveness. This program shows that the chance of producing successful and feasible adaptation strategies is considerably higher in case all relevant stakeholders cooperate and if the development of knowledge is actively demand-driven.

The third example in this cluster is the organization *Social Innovation Factory*. As a small organisation, this can adjust and change procedures and processes quite quickly according to the needs of its clients. The *Social Innovation Factory* provides access to different types of stakeholders in societal challenges to knowledge and expertise. To this end it is building a continually growing learning network, and is developing a social business model and exploring social impact bonds as ways to facilitate positive social impact. The organization bases its work on the belief that businesses and organisations (regardless of whether they are for-profit or not-for-profit) have the power to create new strategies, products, services and concepts that provide answers to societal challenges. It connects different types of stakeholders and sectors through a learning network, peer tables and events, and thus enriches the understanding by these stakeholders of each other's perspectives, needs and concerns. The organisation is also planning action research to test impact measurements in different working environments and on different topics. Collective intelligence is too often neglected, but it is a very powerful tool for creating enthusiasm, insights and a movement of like-minded people across sectors, organisations and themes.

3.2.2 Outcomes: learning, governance, and action

This section presents our analysis of the outcomes of the selected practices. This analysis is channelled through a specific way of looking at RRI, viz. as a societal learning process in which knowledge and perspectives are continuously exchanged and built upon. This process, of course, is significant for enabling sustainable change in the research and innovation system that RRI aims to achieve. During our analysis the nature of the different selected good practices and their relation with (societal) learning processes were considered. It became apparent that most practices could be placed within a framework containing three categories, each rooted in and contributing to societal learning in a different manner: a) learning for learning, b) learning for governance, and c) learning for doing (Figure 10). The three categories are not mutually exclusive, so in theory practices could be placed in more than one category. The categories will be further explained below.

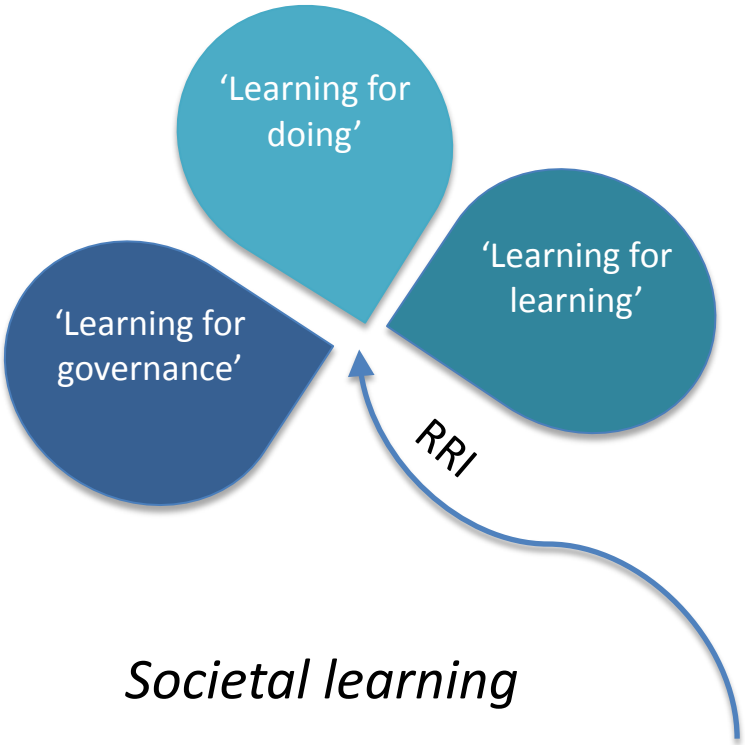

Figure 10: Clover model of three elements of the societal learning process of RRI: learning for learning, learning for governance, and learning for doing

a) Learning for learning

Changes in processes and systems, and here more specifically the research and innovation system, require time and investment. To create and sustain a responsible research and innovation system, the people involved in R&I processes – or that will be involved in the future – will need training in RRI principles and activities. Ideally, such trainings – which can come in many forms – go hand in hand with science education and research and innovation practice, leading to *empowered*, *engaged*, and *responsible actors* across the whole range of our socio-technical system (see working definition D1.1,

learning outcomes). RRI practices and institutions should thus create opportunities for and provide support to people to be responsible, ensuring RRI becomes and remains a solid, continuous reality.

The *learning for learning* category emerged from a vast amount of filled in surveys of good practices addressing science education, both formal and informal, and more traditional science communication. Although agreeing with our partners that science education and communication are important aspects of the R&I system that should not be forgotten or ignored, we decided to only select those practices that try to bring across RRI in direct relation with R&I and not 'only' R&I knowledge, attitudes and skills. These practices try and bring something new, either by method or content, and are therefore more outstanding and interesting as good RRI practices for this document. Because of this rather strict selection criterion, merely three examples still stand in the catalogue (see Table 2).

One of the selected examples within the *learning for learning* category is the tool Homoresponsabilis in the Globalized world. In the form of a game, future managers and entrepreneurs learn in a playful way about on the one hand trading, product development, and leading an organization and on the other hand to co-operate and make informed decisions consistent with principles of social, ethical and environmental responsibility. During the game students become familiar with components of the R&I process in which RRI principles are built-in, training them to become responsible and engaged actors in the R&I system.

Table 2: Learning for learning

Name	Leading organization	Country	Geographical scale	Type of practice
Xplore Health	Barcelona Science Park	Spain	International (*aim*)	Project
Fundación Ibercivis	Fundación Ibercivis	Spain	National	Organization
Homoresponsabilis in the Globalized world	TIME Foundation – eco projects/ Groupe One Belgium	European	European	Tool

b) Learning for governance

To bring about structural changes in a system in the way RRI aims to do in the R&I system, which concerns many different actors, is not easy. Governmental bodies and policies (in any organization), although not able to control the direction and speed entirely, are an important support in organizing such changes in a stepwise manner. While being sensitive to existing dynamics and regularly adjusting aims, they should try to overcome any conflict between long-term ambition and short-term concerns by making and executing policies responsibly (Rotmans, Kemp, & van Asselt, 2001). This continuous search is a learning process in itself. Besides their leading and steering role, governmental bodies need to organize their research activities, decisions-making processes and other functions in a *responsible* manner, as they themselves are active actors in R&I processes and can serve as an example to other actors.

Because of the diverse roles governing agencies have and their involvement in a broad range of research and innovation, they have a strong influence on the outcomes of R&I. To start with, they influence the focus of R&I. For example, the European Commission decided upon the seven major societal challenges R&I especially need to address in the coming years (see working definition D1.1, solutions to societal challenges). Furthermore, governments can serve as an example on how to organize RRI on a bigger scale and in an institution (see working definition D1.1, learning outcomes). Lastly, by being an active participant in many R&I discourses and deciding upon legislation, they have a strong say in what ethically acceptable, sustainable and socially desirable R&I outcomes are (see working definition D1.1, R&I outcomes).

Being central in many research and innovation discourses, governmental bodies are in contact with most of the other actors involved. By either gathering information from these actors or steering them in a certain direction, the nature of these contacts differ widely. Because of these diverse roles of governing, the category *learning for governance* contains different types of practices ranging from practices creating and implementing policy to practices developing platforms and partnerships between stakeholders to inform policy (Table 3).

One example of a practice developing a platform to inform policy is the German civil platform Forschungswende. The platform consisting of CSOs engages with politicians to balance the interests of industry and science with those of public stakeholders. It has created learning spaces – agoras – where CSOs, scientists and policymakers learn to deliberate directly, openly and reflexively on preferences and choices to make in policy-making.

Table 3: Learning for governance

Name	Leading organization	Country	Geographical scale	Type of practice
Voices	Ecsite	European	International	Project
Challenge-driven innovation	VINNOVA (Sweden's innovation agency)	Sweden	National	Program
German Civil Platform Forschungswende	German Civil Platform Forschungswende	Germany	National	Project
NanOpinion	Centre for Social Innovation	Austria	European	Project
Milano - Food Policy	Comune di Milano / Fondazione Cariplo	Italy	National	Project
Knowledge for Climate (Kennis voor Klimaat)	WUR; UU; VU; KNMI; TNO; Deltares	The Netherlands	National	Program
Agenda Eau		France	National	Program
Innoplus	Ministry of higher education and science	Denmark	National	Program
Economic valuation of services and governance of coastal and marine ecosystems	Nova School of Business & Economics	Portugal	Regional	Project
EPSRC	UCL (University College London), Engineering and Physical Sciences Research Council	UK	National	Tool

c) Learning for doing

In the end, the learning processes described above need to result in responsible R&I practices. Put differently, the idea is that one **does** responsible research and innovation in order to **reach** RRI outcomes (see working definition D1.1, R&I outcomes). This last cluster of practices exemplifies precisely this: practices showing what doing R&I looks like when done responsibly (Table 4).

The nature of such action-oriented and change-directed practices can vary widely. They can be organisations, programmes, projects or tools, and they can relate to any of the seven Grand Challenges. The manner in which they contribute to finding solutions for the Grand Challenges varies from awareness raising (e.g., *Marlisco*) and assessing current situations and processes (e.g., *Diversity in the computer games industry*) to developing strategies for changing behaviour (*KlimaAlltag*) or developing (and evaluating) tools for improving quality of life in any possible way (*HAO2*).

Because one can and should learn from previous experiences to improve future activities, in many cases it would be helpful if practices last for longer periods of time. Based on the surveys we analysed, we can draw the conclusion that many practices exist only for as long as they are (externally) funded, which is often quite short. When the money stops coming in, practices are no longer viable. Practices such as *HAO2* (described below) are interesting cases to understand how to combine the development of socially desirable innovations with the aim to make profit, and doing so to become self-sufficient. Looking at applied practices such as these, however, immediately draws attention again to the fact that basic research is absent here.

As said, the organisation *HAO2* is an example of a practice that falls within the *learning for doing* category. The aims of *HAO2* are very concrete and action-oriented, namely to be profitable, to promote the inclusion of individuals who are often excluded from employment, and to develop innovative products that benefit users and improve their quality of life. These three aims are visibly operationalized in 3DNovations. 3DNovations, developed by and for people with autism, aims to create more employment opportunities for people with autism, by developing and selling several 3D virtual world products and services. This practice exemplifies that RRI is not an obstacle for business and shows that RRI can contribute to the development of innovative products and socially desirable outcomes, while being commercial viable and creating business opportunities.

Table 4: learning for doing

Name	Leading organization	Country	Geographical scale	Type of practice
PULSE exhibition and research project	Experimentarium and Steno (centre for research)	Denmark	Local; regional	Project
Diversity in the computer game industry	Praxikon	Sweden	National	Project
Marlisco	Faculdade de Ciências e Tecnologia - Universidade Nova de Lisboa, Portugal	Portugal	National	Project
HAO2	HAO2	UK	International	Organization
KlimaAlltag	ISOE - Institut für sozial-ökologische Forschung (Institute for Social-Ecological Research)	Germany	Local, Regional	Project
The Blueprint for Change Programme	Novo Nordisk	Denmark	International	Program
Collaborative solutions for improvement of data-limited fisheries systems	Portuguese Institute of the Sea and Atmosphere (IPMA)	UK	National	Project
Innovaciones 360º	Instituto de Ciencia y Tecnología de Polímeros (ICTP)	Spain	National	Project
UNIAKTIV - Centre for societal learning and social responsibility at the University Duisburg-Essen (UDE)	Founded by Jörg Miller and Prof. Dr. Wolfgang Stark (director of the Laboratory for Organizational Development (OrgLab) at UDE)	Germany	Local, Regional	Project
Citizens create knowledge (BürGEr schaffen WISSen, GEWISS)	Museum für Naturkunde Berlin	Germany	National	Project
European Bioethics in Action, EuroBioAct	Faculty of Medicine, University of Rijeka, Croatia	Croatia	European	Project
SoScience	SoScience	France	International	Organization
Mistra Urban Futures	Chalmers University of Technology	Sweden	International	Program
SCREEN	Arne Popma (De Bascule - VUmc) and Reinout Wiers (UvA)	The Netherlands	National	Project
Research; increasing value, decreasing waste	UCL (University College London)	UK	International	Project
Economic valuation of services and governance of coastal and marine ecosystems	Nova School of Business & Economics	Portugal	National	Project
Social Innovation Factory	Diversity of organisations (profit, non-profit and governmental bodies)	Belgium	Regional	Organization
Smedpack	Innventia	Sweden	European	Project

4 Discussion and next steps

The RRI Tools project started out with the development of a theoretical framework on RRI. This led, first, to the formulation in D1.1 of a working definition of RRI and, second, in D1.3 to the formulation of criteria for the process requirements for all R&I processes mentioned in the working definition. This catalogue of RRI practices takes the next step of showing what RRI looks like in practice. Before we turn to the RRI practices we have selected individually, however, it is worthwhile reflecting on some of the findings of the compilation.

Practices do not (have to) incorporate all RRI processes and outcomes

Looking at the collection of good practices we have selected, it stands out that, however inspiring many of them are, hardly any of them is exemplary with regard to *all* RRI process requirements and *all* outcomes that have been identified as distinctive of RRI. As a practice selected might well be a tool that, for instance, is developed with the specific aim of stimulating ethical deliberation, we should not expect such a tool to *by itself* help tackle any or all of the grand challenges. Likewise, programs aimed at funding research geared towards the investigation and implementation of solutions to (some of) the grand challenges (think of *Challenge Driven Innovation* for example), should not necessarily be expected to explicitly address all process requirements of RRI.

Even if this might not surprise anyone, we wish to draw attention to this nonetheless. And the reason for this is that the realization of the fact that hardly or even *no* practices are RRI *tout court* if weighed against the working definition of RRI that has been embraced by the RRI Tools project, might well lead some to conclude that for any practice to be considered RRI, it suffices if one aspect of RRI is covered, or even just touched upon. It is on this next level of analysis, where the issue of the bandwidth of what practices should or should not be included in RRI emerges, that we wish to open up a discussion.

The point is that taking the deliberative and inclusive turn to R&I that RRI stands for, involves changing current power structures and current routines. Those who were previously the sole decision makers on R&I have to share this power with others and have to adapt their normal ways of working. It also requires a mind shift, since it means a re-valuation of the knowledge inputs of those who were previously neglected because they were considered irrelevant or were simply not seen at all. You do not have to be a *clairvoyant* to predict that this is by no means an easy process. Hence the need for pressure from funding agencies, awareness raising and training of new competences on RRI.

This also implies that we need to be cautious when it comes to attempts at broadening the concept of RRI in such a way that it does no longer involve changes in the structure and culture of R&I—

attempts often based on casual observations along the lines that “we are already doing RRI”. Of course, there are various existing initiatives and well-established tools and governance instruments that we can build on and a large number of truly inspiring R&I practices where RRI is concerned, and this certainly makes the step towards RRI less daunting than it could have been. Nonetheless, RRI is certainly not “business as usual”. As a result we have excluded several practices that can be considered ‘old school’ science education or that can be viewed as traditional public engagement activities. We have also excluded practices that hardly include research and innovation components.

There should be a strong link with outcomes—good processes in themselves do not amount to RRI
The former point immediately brings us to the realization that a purely procedural conception of RRI does not do. That is to say, even if the requirements formulated for R&I processes are very important for giving hands and feet to RRI and for governing R&I in such fashion as to steer it towards more responsible practice, it should not be lost out of sight that fulfilling those process requirements is no guarantee that RRI outcomes will be achieved. When it comes to assessing R&I practices, then, this also means that outcomes weigh in on the question of whether or not they meet the standards of RRI. However, almost all of the good RRI practices could not (yet) be analysed with regard to the degree to which they managed to effectively address grand challenges.

Many practices are relatively far away from R&I process involving basic research.
Looking at the practices collected in this catalogue in the category *learning for doing*, we find that none of them include basic research. Now the question is whether it is a fact that where people are attempting to put RRI into practice, the core of doing research gets decentred, i.e., moves into the periphery of the practice, or whether this is the result of selection bias, for instance because of the (types of) people we as a consortium have asked to suggest good practices. In discussions with, especially, scientists often the question pops up: *is basic research, given the very nature of the enterprise, not outside the scope of RRI?* so people ask. Or people reason the other way around, and draw the (unwelcome) conclusion that if it were up to the proponents of RRI, there is no place for basic research anymore: s*hould then all research be problem driven?*

Even if RRI is not about prescribing what scientists and innovators should do, it is about making the entire world of science and innovation more responsible —including that part of this world reserved for fundamental science. This means that science and innovation should become more inclusive and more open and that it should be possible for society to “talk back” to science. From this point of view, basic researchers are not exempt from doing RRI.

It would be both unrealistic and unwise to construe this as saying, for instance, that each individual scientist engaged in basic research should spend a certain percentage of her/his time on public

engagement, ethical reflection, and foresight studies *as an individual* (apart from adhering to principles of research integrity, of course). But it does mean that, *at least at an institutional level* work practices should be amended. For instance, policies on (gender) equality and science education can be implemented, (ethical) reflection can be stimulated and research organizations can open up for broad dialogues about potential implications of fundamental research in the (far) future. It is vital that also fundamental scientists engage in such dialogues —if not as organizers or facilitators, then at least as participants/presenters/discussants.

If one takes RRI seriously, in other words, also for basic research it does not do to simply take for granted science's place in society, without being accountable to the people who may in the future be confronted with the results of the research (and, for that matter, to a large extent pay for it). RRI Tools should make an effort including in the catalogue of good practices also basic research practices that offer resources for those who wish to implement RRI. A more purposeful method for collecting practices may be needed to identify examples of RRI that include basic research.

Practice characteristics: weaknesses, obstacles and needs

The selection of practices for this catalogue is made first and foremost on the basis of the strengths of the practices included. However, also when looking at the weaknesses, obstacles and needs that have been identified in these practices some patterns emerge. For instance, many R&I projects, and also some organizations, are financed through short-term (EC) funding programs, which can make it difficult to create commitment with partners and to realize continuity between all phases of R&I, from design to implementation and ensuring the sustainability of the outcomes. Of course, this problem exists in research and innovation projects generally, and is not unique to RRI. However, because RRI seeks to address the Grand Challenges *and* emphasizes the importance of going through time-consuming cycles of inclusion, anticipation, reflection and adaptive change, it makes sense to say that with regard to RRI practices especially, financial security and a horizon more remote in time would add to the quality of such practices.

A further issue that emerged from our analysis of the surveys relates to the nature of engagement elements of various stakeholders and publics. Given the fact that inclusion and deliberation are so central to how RRI was (preliminarily) defined in the RRI Tools project, it does not come as a surprise that Public Engagement is encountered in the vast majority of selected practices (87%, see Figure 4). However, from our analysis of the practices it stands out that often engaging different stakeholders or publics does not take the form of profound participation. Instead, often practices engage stakeholders or publics either for the purpose of (one-time) consultation or in attempts at raising awareness. In these regards it appears that there is still a lot of ground to cover, and it is our conviction that RRI Tools should make it one of its challenges to promote not just instruments for the

purpose of, for instance, one-time engagement or one-directional awareness raising, but for implementing inclusive deliberative practices *throughout all phases* of research and innovation trajectories.

Two related issues deserve attention too. First, although inclusive deliberation is in place in some practices, policy impacts and practical change are not always as prominently distinguishable. Second, most practices are either distinctively focused on research, or on innovation. In some practices, such as the Swedish funding program *Challenge Driven Innovation*, it is an explicit aim to connect the two, but (unfortunately) this is an exception rather than a rule. Both issues undoubtedly point back to the first point mentioned in this sub-section, viz. that funding periods for research and innovation are often relatively short.

D1.4 in RRI Tools

This catalogue constitutes the first step in the process of building a living online database of good practices in RRI. The practices brought together here will feed into this living catalogue directly, but other parties too will be able to suggest practices for this database.

In conformity with our conceptualization of RRI, we are trying to make the process of developing this living catalogue a responsive one, from which all parties involved can learn. For us as authors of this catalogue this means, for instance, that we have drawn lessons as regards what further work has to be done to complement our selection of good practices. And for all members of the RRI Tools consortium this document communicates the reasons for in- or excluding the practices they had suggested in the catalogue. In this way this catalogue constitutes a further step in the learning process concerning the meaning of RRI and what this (can) look like in practice. And of course, for the stakeholders in R&I from RRI Tools' Community of Practice, the practices described here can function as examples for the design as well as the monitoring and evaluation of their own R&I endeavours — as is the case for all stakeholders in R&I.

5 Catalogue of good practices

The catalogue of good practices presents 31 selected good RRI practices. Of each practice a short summary is provided below, as well as the project details, the most interesting lessons learned, its relation with policy agendas, grand challenges, process requirements (of which the ones most exemplary are coloured green), and information about the outcomes of the practice. The practices in this catalogue are ordered per Hub and a table of contents is provided in Table 6 below, to which Table 5 provides a key.

Table 5: key to table of contents (Table 6)

GC: Grand Challenge(s) addressed	**PA** : Policy Agenda(s) addressed	**PR:** process requirement exemplified
1 = Health, demographic change and wellbeing; 2 = Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy; 3 = Secure, clean and efficient energy; 4 = Smart, green and integrated transport; 5 = Climate action, environment, resource efficiency and raw materials; 6 = Europe in a changing world - inclusive, innovative and reflective societies; 7 = Secure societies - protecting freedom and security of Europe and its citizens.	ET = Ethics GO = Governance SE = Science Education OA = Open Access GE = Gender PE = Public Engagement	D&I = Diversity and inclusion O&T = Openness and transparency A&R = Anticipation and reflexivity R&AC = Responsiveness and adaptive change

Table 6: table of contents of good practice descriptions

European practices

Name of practice		NanOpinion
Leading Organisation(s)		Centre for Social Innovation,Vienna
Type of practice		Project
Launch date **End date**		1-5-2012 31-10-2014
Policy agenda		Science education Public engagement
Grand Challenge		6. Europe in a changing world - inclusive, innovative and reflective societies
Research field		Science with and for Society
Summary		A transparent and continuous European dialogue on nanotechnologies requires extending this dialogue into the public arena. NanOpinion established a (media-based) science–technology–social platform and (media and physical) outreach programmes to continuously monitor and understand consumers' and citizens' opinions on nanotechnologies.
Process requirements	**D&I**	The project targeted various groups, including students and teachers, but especially focused on 'hard-to-reach' people – those who are not interested in science, are not usual visitors to science centres or museums, or are not readers of science-related materials. To reach this group, a large number and variety of locations and events were covered (zoos, libraries, city squares, shopping malls, community centres, university campuses, festivals, sports events, art performances) at different times of the day and of the year, in different cities, areas and countries throughout Europe.
	O&T	*No data*
	A&R	The project anticipated concerns by monitoring social media communications and providing balanced information that was not aimed at influencing people's opinions. It encouraged reflection by conducting regular process reviews, promoting discussion about the societal impacts of emerging technologies and organising a variety of discussion and outreach activities aimed at encouraging people to think about attitudes on technology and science in general.
	R&AC	The project integrated new developments (e.g., labelling in cosmetics) into its materials, which were inter alia used for the school activities and provided in the repository on the project portal. In addition, policy recommendations were developed and made available to policymakers, and media partners took up actual debates (such as nanotechnology in food or medicine).
Outcomes		The project contributed in developing and testing outreach methodologies for public engagement in the debate on nanotechnologies. Through an extensive outreach programme, the project reached 15.000 people (in the streets) across Europe. Over 12.000 others were reached through media (including social media), school activities, opinion polls, participatory workshops, and so on. The project also carried out policy recommendations on 1) future potentials and needs for nanotechnology education; 2) public expectations about research, regulation and social implications; and 3) future outreach and communication methodologies and tools for sustainable dialogue.
Lessons/standards		Public engagement activities for new technologies, like nanotechnologies, that aim to make a lasting impact on awareness, need to begin with relatively simple information that prompts individuals' to become better informed. By successfully reaching out to publics who are considered hard to reach, and are thus usually not represented, NanOpinion demonstrated how social dialogue on influential, and potentially controversial, R&I trajectories could be extended beyond public elites to the public at large.
Websites		www.nanopinion.eu www.zsi.at (Centre for Social Innovation, Vienna)

Name of practice		Neuro-Enhancement: Responsible Research and Innovation (NERRI)
Leading Organisation(s)		Ciencia Viva
Type of practice		Project
Launch date **End date**		1-2-2013 28-3-2016
Policy agenda		Gender Ethics Open access Science education Public engagement
Grand Challenge		1. Health, demographic change and wellbeing
Research theme		Science with and for Society
Summary		The NERRI project organises participative activities around Europe to inform and increase society's understanding of neuro-enhancement and to guarantee that neuro-enhancement techniques are developed in accordance with the values and expectations of society.
Process requirements	**D&I**	To obtain a diverse group of participants in NERRI events, the activities are advertised broadly through different channels. Past promotional videos included people of different ages, genders and socio-economic classes. Diversity in research topics, portfolios and perspectives is obtained naturally through the broad group of partners that make up the consortium: 18 partners (representing universities, companies, science centres, and such) from 11 European countries.
	O&T	All information is communicated in a clear manner, since the intention is to make the project easy to understand and to foster everyone's interest in it. In all NERRI public communications (e.g., blog posts, website news, press releases, Twitter messages), the goals and aims of the project are transparently explained. Event evaluations are communicated in NERRI articles.
	A&R	The project aims to inform stakeholders and citizens about neuro-enhancement: what it is; its uses, benefits and risks; and legal issues regarding its regulation. NERRI aims to foster global debate and obtain people's opinions to later shape recommendations for the European Community. Activities are designed to anticipate the future of neuro-enhancement and to challenge existing beliefs and traditional ways of thinking. The project explicitly anticipates possible futures that may or may not be brought to existence by current research and innovation. It confronts the public with scenarios both to grasp relevant "definitions of the problem(s) at issue, commitments, practices, and individual and institutional values, assumptions and routines" and to consider adequate actions (including governance and regulation) before neuro-enhancement becomes widespread and established.
	R&AC	Emerging knowledge and different perspectives are shared in public debates, 'SuperMI', in which stakeholders from different fields take turns presenting their own expertise. In this way, neuro-enhancement professionals get to know one another while learning about and discussing each other's ideas. Event organisation, including content and presentation, is modified based on external factors. Activities are modified to include new technological developments. Similarly, presentation styles are adapted to the social perceptions and current knowledge of neuro-enhancements in a given area. Finally, as national economic situations may change citizens' views on how public money is spent, the project's framework takes this aspect into account.
Outcomes		Several activities have taken place around Europe. For example, in Spain, NERRI conducted two SuperMI public debates (in Coruna and Barcelona), two focus groups (with MIR students and with parents of high school students) and one PlayDecide activity.
Lessons/standards		This project shows how RRI standards can be used to increase society's understanding of a particular topic. Collaboration with different groups, close relationships with stakeholders, and dynamic and participatory activities that encourage discussion and make people feel heard are all important to the success of such projects.
Website		www.nerri.eu www.cienciaviva.pt/projinternacionais/nerri/index.asp?accao=changelang&lang=en

Name of practice		VOICES (Views, opinions and ideas of citizens in Europe on science)
Leading Organisation(s)		Ecsite Athena Institute
Type of practice		Project
Launch date **End date**		16-1-2013 15-7-2014
Policy agenda		Governance Public engagement
Grand Challenge		5. Climate action, environment, resource efficiency and raw materials 6. Europe in a changing world - inclusive, innovative and reflective societies
Research theme		Environment
Summary		The overall aim of the VOICES project was to identify citizens' ideas, preferences, values, needs and expectations with respect to research priorities for the theme 'Urban Waste and Innovation'. Another important aim of the project was to yield valuable insight on methods and procedures for engaging citizen participation to help set the research agenda for Europe's Responsible Research and Innovation framework. One thousand European citizens from 27 EU countries participated in focus group discussions about the topic 'waste as a resource' using a structured VOICES methodology which spans training, implementation and analysis.
Process requirements	**D&I**	To ensure diversity in participating citizens and to represent society-at-large, demographic selection criteria (age, sex, education, employment, housing situation, urban/non-urban, type of municipality) were applied. For diversity in perspectives, a renowned method – focus groups – was applied in a unique way.
	O&T	The entire process is documented on the project website, which is accessible to other institutions.
	A&R	One misconception about VOICES could be that it was inviting citizens to identify problems in the waste management process and directly come up with new innovations in order to solve these problems. This may well be a by-product of the work of VOICES consultations, and it is true that the methodology involves participants identifying and prioritising solutions, but the ultimate objective was for citizens to identify ideas (not only those linked to existing problems) to feed into analysis and influence research priorities. An important advantage of focus groups is that participants can respond to and build on the views expressed by the other participants. It is a method that provides opportunities to gain in-depth insight into experiences, values, wishes and concerns of participants and stimulates shared creative thinking.
	R&AC	Stakeholders (policymakers) were asked to consider citizens' needs in order to foster tailored scientific research in the field. Specific research calls on waste management were influenced by citizens' priorities.
Outcomes		The outcomes of the focus groups were analysed by researchers, who first summarised the priorities for each country, and then compared these results on a European level. The reports produced were used by the European Commission to draft some of the calls for research proposals under the new Horizon 2020 Framework Programme for Research and Innovation. The knowledge gained through VOICES will echo in similar participatory actions across Horizon 2020.
Lessons/standards		By demonstrating how the opinions of European citizens can directly influence policymaking related to research and innovation, VOICES showcases an RRI methodology that successfully couples inclusive deliberation to transformative policy action.
Website		www.voicesforinnovation.eu

Belgium and Luxemburg

Name of practice		Sociale Innovatie Fabriek (Social Innovation Factory)
Leading Organisation(s)		A general assembly made up of a diversity of organizations, ranging from profit, non-profit and governmental bodies.
Type of practice		Organisation
Launch date		2013
Policy agenda		Governance Public engagement Open Access
Grand Challenge		6. Europe in a changing world - inclusive, innovative and reflective societies
Research theme		Science with and for Society
Summary		The Social Innovation Factory is a networking organisation of civil society organisations and social entrepreneurs that promotes, coaches and supports social and societal innovative concepts. It is based on the belief that businesses and organisations (both for-profit and non-profit) have the power to create new strategies, products, services and concepts that provide answers to societal challenges, such as poverty, climate change, aging and loneliness. It provides access to knowledge and expertise through its continually growing learning network, and is developing a social business model and exploring social impact bonds as ways to facilitate positive social impact.
Process requirements	**D&I**	There are no specific efforts to increase social diversity; however, the learning network is a very diverse and varied population (from small, local non-profit or community projects to big companies).
	O&T	The organisation communicates about its own knowledge and capacity building in a transparent way that avoids jargon and specialist language. However, because there may be issues regarding competition and sensitive internal processes, it respects confidentiality on projects in development and discloses only general findings, recommendations and tools. The social business model tool is offered in a workshop, which attendees pay for in euros or in knowledge.
	A&R	Because good intentions are not enough to make a difference, the organisation challenges innovators to think their concepts through: What is their mission? Is the social impact that they strive for clear? What is their revenue model? Which partners and stakeholders are involved? It is also exploring a redesign of the funding process (using social impact bonds) that would be based more on the societal impact and societal value brought about by social innovations and less on their economic value.
	R&AC	As a small organisation, the Social Innovation Factory can adjust and change procedures and processes quite quickly according to the needs of its clients. Connecting different types of stakeholders and sectors through the learning network, peer tables and events enriches understanding of each other's perspectives, needs and concerns. The organisation is also planning action research to test impact measurements in different working environments and on different topics.
Outcomes		The learning network is much used by innovators, and the social business model tool has been developed and is being fine-tuned. The organisation has set up a reflection group on social impact and about 50 one-on-one sessions that team experts with innovators on specific questions. Other workshops and tools are being developed. The social pitch box offers an online pitching tool for innovators and entrepreneurs to spread their concepts. We also offer now workshops on pitching and financial planning. In each workshop we integrate peer to peer learning systems.
Lessons/standards		Collective intelligence is too often neglected, but it is a very powerful tool for creating enthusiasm, insights and a movement of like-minded people across sectors, organisations and themes. Social innovation and entrepreneurship is very challenging, a tailored approach for innovators is a must. They have to be able to learn and grow their project at their own pace.
Website		www.socialeinnovatiefabriek.be

Bulgaria and Rumania

Name of practice		Homoresponsabilis in the globalized world
Leading Organisation(s)		TIME Foundation – eco projects Groupe One Belgium
Type of practice		Tool
Launch date		11-30-2013
Policy agenda		Ethics Science education
Grand Challenge		6. Europe in a changing world - inclusive, innovative and reflective societies
Research theme		Science with and for Society
Summary		Homoresponsabilis is a game that addresses ethics and science education. Games are a proven approach when working with children and youth because they fit young people's natural needs and interest. Made with a user focus, Homoresponsabilis empowers children and youth to help them become responsible consumers who are not swayed by advertising and consumerism. The game aims at developing new knowledge about the role of children and youth as end consumers of natural resources and is focused on questions related with fair trade, corporate social responsibility, education and development, north–south trade relations, management responsibility and ethical business decision-making processes.
Process requirements	**D&I**	The game was developed based on research comparing the 'rich' North and 'poor' South. It included representatives from the education community, business trade organisations and students of different ages.
	O&T	All stakeholders have access to the goals, which are described in a project that aims to transfer the learning method to other countries. Stakeholders from CSOs and the education community have access to the project's procedures.
	A&R	The idea for the game arose from a need to rethink current values and the ways of doing business. It is a method for teaching future managers and entrepreneurs the importance of considering the needs of all stakeholders in business decision-making processes. Though the game is related to existing teaching methods and tools, it is an alternative way of building youths' knowledge and skills in business ethics, open communication, corporate social responsibility and business decision-making processes.
	R&AC	The game's strategy is based on the principle of considering others' needs, concerns and perspectives. It is envisaged as an interactive teaching tool for use in secondary and postsecondary technical and vocational schools. Though the game is designed to effect change in existing structures, for that to happen, other stakeholders must be included, namely education policymakers, who can enact changes, and researchers, who can measure the game's impact.
Outcomes		The game has been designed and implemented, but has not yet been evaluated.
Lessons/standards		The tool serves as a model of how RRI can be taught (and why it should be taught) in schools. Homoresponsabilis teaches children – the customers and business managers of tomorrow – to extend the main focus of business from making profit to satisfying customers in sustainable ways. To reach the ultimate goal – changing existing practices and, thus, societal behaviour, especially that of particular societal groups – it is essential that all stakeholders are included at beginning of the design and development of such tools.
Website		www.responsabilis.eu

Denmark

Name of practice		Inno+
Leading Organisation(s)		Ministry of Higher Education and Science (Denmark)
Type of practice		Programme
Launch date		26-9-2013
Policy agenda		Open access Science education Governance Public engagement
Grand Challenge		1. Health, demographic change and wellbeing 2. Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy 3. Secure, clean and efficient energy 4. Smart, green and integrated transport 5. Climate action, environment, resource efficiency and raw materials
Research theme		Science with and for Society
Summary		The INNO+ Catalogue is a knowledge base for prioritising future societal partnerships in innovation. The main aim of the programme was to provide politicians with the information they need to prioritise support for innovations that can create growth and solutions to societal challenges. In developing the catalogue, stakeholders proposed almost 500 focus areas, participated in meetings and workshops around the country and co-authored the contents of the proposed focus areas. The selected 21 focus areas fell within six categories: 1) innovative transport, environment and urban development; 2) innovative food production and bioeconomy; 3) innovative health solutions; 4) innovative production; 5) innovative digital solutions; and 6) innovative energy solutions. Apart from guiding politicians, the catalogue acts as inspiration and guide to people working in research and innovation. In the process of describing the focus areas and possible solutions, different transdisciplinary collaborations were also suggested and encouraged.
Process requirements	**D&I**	Through workshops, stakeholders from over 100 institutions in different fields (such as, but not limited to, industry, business, education, research and NGOs) contributed to the catalogue's development and collaborated with the ministry on prioritising areas of focus.
	O&T	All stakeholders can access the online catalogue. Since the catalogue is mainly a guide for politicians, it is written so that most people can understand.
	A&R	The catalogue aids reflection on how innovations can focus on societal challenges and create growth. During workshops, the possibilities and potential consequences, in different focus areas, were debated. The areas that seemed most promising were selected.
	R&AC	Consideration of different perspectives was built in through collaborations across fields and through the dialogue and discussions that took place during the workshops. Since the catalogue is only a guide, it does not necessarily adapt to external factors; however, the funded projects will certainly do so.
Outcomes		The INNO+ Catalogue was developed and made available online. Now the politicians have decided to initiate 7 societal partnerships (out of the 21 in the INNO+ catalogue). These aim to solve great societal problems within the fields of e.g. climate, environment and health. Five societal partnerships have already started and two more are on the way. The two furthest developed partnerships are described at: http://www.blaainno.dk/ and https://nextpartnership.dk/
Lessons/standards		This type of programme works to solve problems in relation to the seven grand challenges by including a wide range of stakeholders, each of whom takes on responsibility for solutions; though with this new way of working and with so many stakeholders involved, more time may provide improved results. The process and the resulting catalogue are transferable to other countries. It is however too early to draw any conclusion or lessons from this practice, but so far the results of the first societal partnerships are positive and promising.
Website		www.ufm.dk/en/newsroom/issues/inno

Name of practice		PULSE exhibition and research project
Leading Organisation(s)		Experimentarium Steno Diabetes Centre
Type of practice		Project
Launch date **End date**		1-3-2013 31-12-2016
Policy agenda		Ethics Science education Public engagement
Grand Challenge		1. Health, demographic change and wellbeing
Research field		Health
Summary		The aim of PULSE is to create innovative research-based science exhibitions and community activities that motivate and support families to take action to develop and sustain healthy lifestyles. The project is a research-based, action-oriented exhibition development project (taking place at the Experimentarium) which motivates participating families to carry out introduced activities at home, in their area and in the community at large. The PULSE exhibition will also serve as an international model demonstrating how science centre health exhibitions can involve socio-economically less advantaged families (as well as more privileged families) in improving their health.
Process requirements	**D&I**	The project group itself consists of people from different professional practices and disciplinary backgrounds, providing different disciplinary approaches, interest areas and competences, so that the project is built from multiple perspectives. As one of the main focus areas of the project is inclusion and participation of citizens with different ethnic and socio-economic backgrounds, the process is designed to increase social diversity.
	O&T	By starting with ethnographic studies, the project gained a thorough knowledge of the differences in target groups and practices and subsequently used that knowledge to tailor information and create communication and interaction strategies for different groups.
	A&R	The basic premise of the project is that current ways of communicating health can be improved. The dominating discourses on health, responsibilisation for individual health status and normative notions of how to live a healthy life need to be challenged to better accommodate different practices of family life, healthy life and social life. The project's co-creation process involves an ongoing dialogue with users who are asked questions such as: What can this project do for you? What adjustments will make it work better for you?
	R&AC	The user involvement has been of great importance in the design process, providing valuable knowledge on health practices and challenges, health knowledge and values, and everyday family and work life management, as well as how to best promote reflexive discussion and generate incentives for healthy changes through educational dissemination and activities. Some of the developers' conceptions and ideas have had to be discarded because they did not fit with the values and perceptions of the participants and, thus, were not doable.
Outcomes		It has been the project's aim to create user-driven health changes/exhibitions. This requires change at an organisational level and development of methods to use in the future for similar projects. However, the project also aspires to influence policy, municipal procedures and belief systems through its process and results.
Lessons/standards		PULSE shows that, despite its serious undertones, effective RRI can take on many creative and fun forms, such as a co-created hybrid of science exhibition and lifestyle intervention.
Website		www.steno.dk/en

Name of practice		The Blueprint for Change Programme
Leading Organisation(s)		Novo Nordisk
Type of practice		Programme
Launch date		1-4-2013
Policy agenda		Ethics Open access Science education Governance Public engagement
Grand Challenge		1. Health, demographic change and wellbeing
Research field		Science with and for Society
Summary		Novo Nordisk believes that a healthy economy, environment and society are fundamental to long-term business success, and that all their activities must always be conducted with the aim to consider their responsibility within these three conditions. The Blueprint for Change Programme aims to enhance others' understanding of how the company creates value through its 'Triple Bottom Line' business principle by identifying the drivers of value creation, measuring realised benefits for society and the organisation, and sharing this information with their stakeholders. In this way, the company optimises its value creation and inspires others to make sustainability-driven business decisions.
Process requirements	**D&I**	Gender diversity is a part of the company's policy. Though social diversity was not considered in the programme's development, stakeholders from different groups were represented. The programme's case studies have focused on social diversity by working within different 'types' of countries – rich and poor, with different health problems and very different understandings of diabetes.
	O&T	The programme's goal is to create transparency and to communicate Novo Nordisk's values and working process. The company website provides a clear and understandable explanation of the programme and the process leading to it. Information about all cases studies is also available for stakeholders as short pamphlets, short movies and more thorough reports.
	A&R	Novo Nordisk believes that the company's actions affect society; therefore it has a responsibility for those effects. Reflection and awareness are key to promoting ethics and sustainability. Stakeholders are included very early in all processes so that strategies are designed according to local needs, cultures and challenges.
	R&AC	The programme fuels collaborations, developments and innovations in health. It aims to identify potential fields for business/markets and for societal improvements. It is vital that the company and the programme are very adaptable to changes in laws and other external factors.
Outcomes		The programme has facilitated eight case studies, all of which are described on its webpage. The case studies focused on solutions to diabetes-related challenges, analysis of how focusing on creating shared value has improved diabetes prevention and care, and exploration of the interrelationship between climate and health, specifically regarding how CO_2 reduction strategies can generate value for business and society.
Lessons/standards		This programme exemplifies how RRI standards in business practices can promote sustainable, profitable business as well as benefits for society. If businesses understand how their practices influence and create value for society, they will be able to identify how to create more value (economically, environmentally and socially). This lesson can be easily used by other businesses, which is one of the purposes of the programme – to inspire more shared value creation.
Website		www.novonordisk.com/sustainability/how-we-manage/blueprints.html

France

Name of practice		Agenda EAU
Leading Organisation(s)		Agenda EAU – Bordeaux University
Type of practice		Programme
Launch date		1-12-2014
Policy agenda		Governance Public engagement
Grand Challenge		5. Climate action, environment, resource efficiency and raw materials
Research theme		Environment
Summary		Agenda EAU is a one-year pilot programme focused on water challenges in the Aquitaine region of France. Stakeholders from research and research governance, civil society, business and policymaking will work together to develop research questions that align with society's needs and wishes.
Process requirements	**D&I**	Participants were selected from four stakeholder groups (researchers, research governance, civil society, business and policymakers) because they were already working on the challenge and/or had an innovative mind set. Gender was not explicitly taken into account, though women seemed to be more represented in the 'motivated, involved and innovative' type of people as compared with gender-balance in other research boards.
	O&T	*No data*
	A&R	Agenda EAU took A&R into account in the program design from the start, with dedicated tools and expertise (recruitment will/has been made) in that perspective. The programme will use a prospective scenarios method that uses 2D and 3D forecast GIS mapping to help the debate go beyond discussion of current situations, triggering research needs for the upcoming 10 to 20 years. As social scientists, the project initiators and co-developers have expertise regarding the past and current ways of thinking about environmental questions, especially those related to water, that are present in both civil society and research communities.
	R&AC	As a topic, water is a quite stabilized issue, so little change in external factors is expected. However, factors such as water quantity and quality, and seashore erosion, pollution, health and environment, will present challenges. The stakeholder participants and facilitation methodology have been chosen to promote recognition of others' needs, concerns and perspectives.
Outcomes		There are currently few outcomes because the programme is new. However, approached stakeholders have readily agreed to participate. RRI standards of an engaged public, responsible actors and institutions, socially desirable R&I and solutions to societal challenges are formulated in the programme's aims.
Lessons/standards		Agenda EAU is a pilot programme whose structure may prove useful to other research topics. It is designed as the first of many "Agendas" yet to come on other topics, and involving other representatives of the different stakeholders groups. A guide, including feedback, analysis and guidelines, will be produced to facilitate use for other issues.
Website		*No data*

Name of practice		SoScience
Leading Organisation(s)		SoScience
Type of practice		Organisation
Launch date		September 2013
Policy agenda		Public engagement
Grand Challenge		6. Europe in a changing world - inclusive, innovative and reflective societies
Research theme		Science with and for Society
Summary		SoScience is an organisation – and a tool – that helps others achieve RRI. SoScience believes science has a role to play in solving the greatest challenges of today and tomorrow. By creating partnerships with laboratories, engineering schools, social entrepreneurs and major companies, SoScience helps launch responsible research projects and catalyses the invention of innovative solutions for a more sustainable world for all. The organisation works to 1) identify R&D ideas from communities aggregated around social entrepreneurs; 2) build academic research partnerships to align research with the needs of social entrepreneurs; 3) train current and future researchers and engineers on responsible innovation that focuses on solving issues rather than avoiding problems; and 4) launch responsible R&D programs with businesses, based on their own initiatives or the needs of social entrepreneurs.
Process requirements	**D&I**	The diversity of social entrepreneurs involved (a company in Burkina Faso, networks of refugees) is, in itself, a source of wide social diversity. Similarly, the needs are diverse enough to involve researchers from different disciplines. Examples include design improvements for clean ovens, a drone swimming study for ocean cleaning, micro-encapsulation of mosquitoes repellent to fight malaria and connected objects for monitoring autistic children.
	O&T	The openness of the research is decided by the social entrepreneur(s) in question, not by SoScience. For example, the work of SoScience on marine drones is 100% open science, open hardware, open source, while other research might by protected by patents.
	A&R	Each project is built upon expected social and/or environmental benefits. Projects are discussed with potential users before being launched so that all aspects can be identified and understood. Questions of possible impacts (positive or negative) thereby appear early in the project definition, and designs can be adjusted as necessary. For example, a clean drinking water project in Cambodia must find an alternative to chlorine because communities will not accept water tasting of chlorine.
	R&AC	The organisation encourages researchers to consider the needs of social entrepreneurs and their communities when designing new research projects and shows social entrepreneurs that research can be a powerful ally in helping to meet their needs. So far, changes to existing thought and behaviour have occurred at the level of the individual; it will take more time for this first circle of people to effect changes in their respective organisational structures.
Outcomes		During the past two years, the organisation has launched approximately 10 one-year academic research/social entrepreneur projects and trained 1.500 engineering school students. SoScience has also received recognition for its work from the social entrepreneur community and from social and solidarity economy actors.
Lessons/standards		Success in collaborations between research sectors and 'the rest of the world' and advocating RRI in big companies both require intermediation. The chances of real success are increased when people or organisations with expertise in working with social entrepreneurs and their communities and the research world get involved.
Website		www.soscience.org

Germany

Name of practice		Citizens create knowledge (BürGEr schaffen WISSen, GEWISS)
Leading Organisation(s)		Museum für Naturkunde Berlin – Leibniz Institute for Evolution and Biodiversity Research; German Centre for Integrative Biodiversity Research; Helmholtz Centre for Environmental Research; Science in Dialogue (Wissenschaft im Dialog gGmbH)
Type of practice		Project
Launch date		April 2014 Ends in July 2016
Policy agenda		Open Access Science education/Citizen science Governance Public Engagement
Grand Challenge		6. Europe in a changing world - inclusive, innovative and reflective societies
Research field		Science with and for society
Summary		GEWISS promotes citizen science in Germany by networking existing projects and initiatives and facilitating discussion on the possibilities of this approach between practitioners, scientific institutions, funders, policymakers, civil society organisations and interested citizens. GEWISS aims to develop citizen science methodologically, strategically and practically through building networks, analysing current activities and needs, creating a toolkit to promote activities and quality, producing technical and organisational resources, and developing a strategy for the future.
Process requirements	**D&I**	Stakeholders with targeted experience and expertise lead workshops on key issues related to citizen science. The project works to ensure gender balance in keynote speakers and workshop leaders, and reimburses travel costs to encourage participation of volunteer actors. The online platform invites project initiators to share experiences and identify new projects, and encourages citizen participation, regardless of social, gender or ethnic background. Active methods such as world cafés, interactive workshops and project fairs promote input from all participants.
	O&T	The project aims to build trust between citizens, stakeholders and scientists. Stakeholder groups have access to goals, procedures, expectations, progress and research data through the GEWISS online platform. Results of events are available online through the project website and are archived with the German National Library. Information tailored to the public or specific stakeholder groups is disseminated through activities and academic and lay publications.
	A&R	The advisory board plays a key role in anticipating and discussing possible consequences. As the project team has worked to build a definition of citizen science that includes all different perspectives and is sensitive to several areas of contention, potential areas of concern as well as opportunities and barriers have been discussed in world café–style events.
	R&AC	World cafés and interactive workshops allow different stakeholders to discuss their ideas and perspectives. As attendance can be difficult for some, the project has responded by organising a series of webinars and holding events at times and locations that are more convenient for attendees. The project is also discussing ways of addressing external factors such as distrust between scientific institutions and societal actors and difficulties in obtaining funding for citizen science projects.
Outcomes		Discussions (through events and the online platform) are taking place and the project has begun development of the Citizen Science Strategy 2020 for Germany and a practical resource toolbox for citizen science practitioners. The project is also completing analysis of a public survey on citizens' attitudes and needs related to citizen science. Additional outcomes are not yet available.
Lessons/standards		The development of strategic and practical tools within the citizen science community can open new opportunities for good practices. Building cooperation between different actors may help reduce distrust and increase acceptance of citizen science as a desirable addition to traditional science and build a stronger coalition of partners in the area of participatory research.
Website		www.buergerschaffenwissen.de/en

Name of practice		German civil platform Forschungswende
Leading Organisation(s)		German civil platform Forschungswende (consisting of a wide variety of CSOs and research networks)
Type of practice		Project
Launch date **End date**		1-8-2012 1-7-2016
Policy agenda		Ethics Open access Public engagement
Grand Challenge		6. Europe in a changing world - inclusive, innovative and reflective societies
Research field		Science with and for society
Summary		Forschungswende works at the national level to promote science policy expertise, create a forum for those interested in politics, governance and science policy, and increase demand for and promote improved participation and transformation orientation in the science system. To this end, it created a platform of civil society organisations (CSOs) to enhance organisation capacity and increase transparency and transdisciplinary participation in the research and innovation system. Forschungswende is changing how R&I is approached to help shape social – ecological transformations and science policy democratisation.
Process requirements	**D&I**	The platform engages with politicians to balance the interests of industry and science with those of public stakeholders. It forms an 'agora' of diverse CSOs (e.g., environmental organisations, development organisations, social organisations, student organisations, food organisations) and collaborates with other partners and advisory boards working on sustainable science.
	O&T	The platform organises presentations and face-to-face meetings to explain the concept of transdisciplinary research and the need for more participation among CSOs, policymakers and the science system. It documents every workshop and working process on its website, which also contains a collection of relevant studies and links.
	A&R	The platform challenges the traditional science and research system by introducing and promoting the concept of transdisciplinary research and demanding broader involvement of CSOs in all stages of the R&I process. Via interactive workshops (for example, on envisioning our society in 2030), conferences, policy papers and a knowledge sharing platform, the participation of diverse CSOs facilitates debate and reflection on power relationships, assumptions, values, transparency and complexity in science and policy processes.
	R&AC	The practice itself does not react to stakeholder needs; instead it is a platform and a voice for those needs. It aims at changing structures and systems so they become more responsive. However, through observing and communicating about various events, the platform seems to be sensitive to changes in external factors.
Outcomes		Together with collaborative partners, Forschungswende has created strategy groups to develop platform processes on good science and practice. It has organised workshops and conferences to outline priorities and working structures and has published the study, 'Participation and Transparency in Energy Research'.
Lessons/standards		The platform has taken up three related, complex and perhaps underexposed challenges of RRI governance: 1) The need for RRI capacity building of societal stakeholder groups, including 2) acknowledgment of the inherently political character of science–policy–society interfaces and R&I processes, which necessitates lobbying activities and 3) the creation of learning spaces, agoras, where CSOs, scientists and policymakers learn to deliberate directly, openly and reflexively on preferences and choices.
Website		www.forschungswende.de

Name of practice		KlimaAlltag – low carbon lifestyles in the zero emissions city
Leading Organisation(s)		ISOE (Institute for Social-Ecological Research)
Type of practice		Project
Launch date **End date**		October 2010 December 2013
Policy agenda		Open Access Public engagement
Grand Challenge		5. Climate action, environment, resource efficiency and raw materials
Research field		Science with and for society
Summary		The KlimaAlltag project conducted a field test and empirical surveys to investigate low-carbon lifestyles in different social strata, focusing on mobility, nutrition, lifestyle and household energy consumption. In parallel, it analysed the effects of selected social and environmental policy instruments. Its overall goals were to 1) develop target-group-specific strategies to promote low-carbon lifestyles; 2) determine starting points, options and limits concerning the decarbonisation of everyday routines; and 3) assess climate-related measures supporting climate-friendly everyday routines.
Process requirements	**D&I**	Though the research topic was fixed, different perspectives were included through the involvement of stakeholders (researchers, citizens, municipal enterprises and community service organisations). Participant recruitment for the field test was based on socio-demographic and socio-structural characteristics and target quotas for gender, income level, life stage, household structure, migration background and current environmental commitment.
	O&T	A website available to the public contained project reports (goals, procedures, expectations, progress) and a brochure written in non-technical language.
	A&R	The project addressed different social classes, but also required balanced participation. Since recruitment of low-income and migrant households was seen as a possible difficulty, organisers sought the cooperation of welfare organisations and migrants associations. Other target households were identified through municipal companies. The participation of these intermediaries was essential. Participating households had different expectations for the outcomes, which could not be foreseen or addressed in advance. By evaluating the results and clustering the outcomes, different aims were identified and considered in the subsequent consultation processes.
	R&AC	The VZ (consumer advice centre) provided an important link between different stakeholder groups by mediating the process and translating academic findings into language and recommendations that practitioners could use. Continuous reflection on findings aided mutual understanding of the needs and obstacles. The consultation process produced ideas for future projects and a move towards approaching energy, nutrition and mobility together rather than separately.
Outcomes		The project resulted in household commitments to reducing CO_2 emissions, as well as relevant data for future initiatives and projects to promote lifestyle changes that benefit the climate. The VZ and local partners, as community facilities, service providers and companies (e.g. transport companies, energy suppliers, etc.) can use the knowledge generated in the scientific evaluation of the field test.
Lessons/standards		In this transdisciplinary approach, it was essential to have a mediator to facilitate connecting with different stakeholders and to establish which stakeholder group was responsible for which target group. Introducing low-carbon lifestyles is transferable to metropolitan areas and probably mid-size cities, but may not be transferable to rural regions because of mobility factors. A tool of behavioural climate advice has been developed and tested in practice. This consultation follows a field of action overarching approach (mobility, nutrition, energy / residential) and aims at a more climate-friendly citizens' daily lives.
Website		www.klima-alltag.de

Name of practice		UNIAKTIV – Centre for societal learning and social responsibility at the University Duisburg-Essen (UDE)
Leading Organisation(s)		UNIAKTIV
Type of practice		Project
Launch date **End date**		2005 ongoing
Policy agenda		Science education Public engagement
Grand Challenge		6. Europe in a changing world - inclusive, innovative and reflective societies
Research field		Science with and for Society
Summary		UNIAKTIV is committed to promoting social responsibility and community involvement of students and teachers and to integrating these issues into university teaching. Central to this is the pedagogical approach of service learning (SL) – combining university education and student civic engagement. Activities include promoting SL at UDE and other universities, enabling faculty to hold SL courses, facilitating cooperation between faculty and CSOs as SL community partners, fostering forms of student civic engagement, developing workshop formats, and promoting topics at political levels (local to national).
Process requirements *	**D&I**	Service learning is applicable to all fields of study. Stakeholders have been involved at relevant stages through written information and events at the university and at non-profit organisations. The methodology and strategy addresses teachers, students and non-profit organisations. An advisory board for strategic development and implementation includes professors, university administration, students and representatives of non-profit organisations.
	O&T	All stakeholders involved in SL projects have access to information about the goals, procedures, expectations, progress and results of those projects. The advisory board has access to information about the umbrella project, UNIAKTIV. Results were presented to local project partner organisations with hand-outs, reports, documentations or recommendations.
	A&R	Service learning is a new approach that challenges existing beliefs regarding societal responsibility, the value of education in the university system and the role of researchers and universities in society. It also tries to bridge existing gaps. There are potential risks of internal system change (for the university) and of working with students (for non-university partners).
	R&AC	The advisory board, regular meetings with participants, and feedback and evaluation contribute to a continuous exchange of ideas and identification of best practices. Mutual understanding has led to cooperative development of SL projects that fit participating organisations' needs.
Outcomes		The practice has been successful – even beyond the initial university. More than 150 SL seminars have been held at UDE. Approximately 2.000 students, 90 faculty and 200 CSOs have used UNIAKTIV services. As the project has progressed, participation by professors and teachers has increased and UDE has established a vice-chancellorship of 'diversity'. In addition, a network of universities (currently 30) participating in SL has been established and funders have implemented SL in their funding schemes. As one further result of UNIAKTIV, UDE has established a permanent post to support faculty service learning activities.
Lessons/standards		Service learning is an approach with sustainable effects, but it requires staying power, resources, publicity and publics, and most of all, individual/personal commitment (it is more than just a job). Service learning is a methodology for schools and higher education institutes; it is a concept for local networking that benefits students and institutions.
Website		www.uniaktiv.org

Hungary

Name of practice		EuroBioAct, European Bioethics in Action
Leading Organisation(s)		EuroBioAct
Type of practice		Project
Launch date **End date**		15-9-2014 15-9-2017
Policy agenda		Ethics Open access Science education Governance Public engagement
Grand Challenge		2. Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy
Research field		Science with and for Society
Summary		The major goal of the project is to develop bioethical standards for optimizing humans' relationships towards their own health as well as towards animals, plants and the environment. These standards will be based on the principles and theory of European bioethics combined with the experiences and realistic ambitions of local communities (e.g., local governments and non-governmental organisations). Pilot research will take place in three northern Adriatic communities: Kršan and Bakar, which were recently seriously jeopardised by industry, and Mali Lošinj, a careful but fragile community. Bioethical standards will be formulated through workshops, negotiations, talks and conferences by participating local stakeholders (including civil society) and an interdisciplinary collection of scientists from Croatia, Serbia and Germany. Bioethics is a discipline which might instigate multi-perspective approaches to complex environmental issues. By applying the results of scientific and philosophical research to concrete problems of endangered communities, the research itself is supposed to gain volume and sense. If the work on forming bioethical standards results in increasing local consciousness of issues, this might become a good practice worthy of repeating and disseminating.
Process requirements	**D&I**	The project will involve educators, researchers, business people, government officials and those active in civil society at its different stages.
	O&T	Goals, procedures, expectations and progress will be made available through meetings, workshops, email notifications and a website.
	A&R	Implementation of bioethical standards may reduce certain health risks and increase tourism. By taking into account both scientific and non-scientific (e.g., religious, artistic, cultural) perspectives, the integrative bioethics methodology helps create solutions through the accumulation of 'orientational knowledge'.
	R&AC	Workshops will promote dialogue between stakeholders regarding quality of life issues and major problems in environmental protection. Once bioethical standards are implemented, they may become instruments of mutual monitoring between communities and politicians. Future workshops can revise standards as external factors change.
Outcomes		To date, the project has successfully promoted public and institutional engagement in local issues, using ethically acceptable and socially desirable R&I practices. Bioethical standards developed in the pilot communities could potentially be applied at other localities and regions in Europe, and even abroad, with modifications appropriate to the particular issues in a given area.
Lessons/standards		This project shows how bioethical theory can be practically applied. It is also an example of how RRI standards can help establish partnerships between academic communities and local authorities, develop environmental awareness in local communities and potentially benefit local economies through increased tourism.
Website		*No Data*

Italy and Switzerland

Name of practice		Milano – Food Policy
Leading Organisation(s)		Comune di Milano Fondazione Cariplo
Type of practice		Project
Launch date **End date**		1-7-2014 30-6-2019
Policy agenda		Ethics Governance Public engagement
Grand Challenge		2. Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy
Research theme		Food and Agriculture
Summary		This is a long-term project to develop a city food policy that will be a support tool for governance. The policy's aim is to systematically integrate information and projects relevant to support citizens in activities associated with the production, use, consumption and disposal of food. In this context, it is expected to facilitate increased food quality, allow for increased equal access, reduce environmental impacts and encourage the correct distribution of economic value. The project steps include 1) developing a background analysis of the available literature related to production and consumption of food in Milano, 2) collecting data relevant to food policy's design, and 3) facilitating citizen and stakeholder engagement in projecting and realising interventions useful to improved food quality.
Process requirements	**D&I**	There is no direct focus on gender, ethnic and socio-economic diversity, but the project is attempting to be inclusive and open to diverse perspectives: consultation and engagement platforms are being developed with the active involvement of citizenry and diverse stakeholders (scholars, industry, innovators, municipal and district councillors, and so forth). More focus is given to the diversity of research topics, which will naturally result from the broad range of stakeholders involved.
	O&T	*No data*
	A&R	This project will map existing practices, knowledge and research regarding food and food disposal. At this stage it is working to address the risks associated with misinformation about these issues by closing knowledge gaps and modifying ways of thinking.
	R&AC	The project is actively working to facilitate communication across different stakeholders and include stakeholder feedback in the policy's development. Thus, it is actively responding to developing knowledge and mapping changes occurring within the Milano area and facilitating inclusion rather than reacting to external factors.
Outcomes		Since the project is in its infancy, it is not yet possible to comment on the effective outcomes of this policy. Plans include identification of 8–10 thematic fields, with specific concepts and guidelines, which will be evaluated by participants during two preparatory sessions, ultimately leading to government implementation of an Urban Food Policy Pact.
Lessons/standards		The inspirational component of this project mostly concerns the upfront inclusion of citizenry in the development of policy. Inclusion and diversity, hence, is the most valuable element. This project appears especially valuable because it tries to create a number of different opportunities for civil society in general, as well as all the other stakeholders implicated in the food chains (researchers, industries, etcetera), to participate with their personal insights in defining the policy agenda and content. Though the project is still in the early stages, participants in the direction and exploration stages have described the project as especially innovative in how it encounters certain cultural as well as practical challenges. New RRI practices have to consider a possible lack of awareness and understanding about the issues related to RRI within the audience of stakeholders.
Website		www.cibomilano.org/en/milan-food-policy/

Netherlands

Name of practice		Knowledge for Climate (Kennis voor Klimaat)
Leading Organisation(s)		Universiteit Utrecht, Wageningen UR, Vrije Universiteit, KNMI, TNO en Deltares
Type of practice		Programme
Launch date **End date**		1-1-2007 31-12-2014
Policy agenda		Science education Public engagement
Grand Challenge		3. Secure, clean and efficient energy 5. Climate action, environment, resource efficiency and raw materials
Research theme		Environment
Summary		Knowledge for Climate (2007–2014) was a Dutch research programme aimed at developing applied knowledge, through cooperation between the Dutch government, the business community and scientific research institutes, to ensure that long-term decision making considers the impacts of climate change. It focused on a limited number of vulnerable areas, or 'hotspots', and regional knowledge programmes using an integrated multi-stakeholder participative approach in three phases: 1) 'low-hanging fruit' projects, which were often practical and easily implemented; 2) doctoral projects in science; 3) valorisation and regional adaptation schemes.
Process requirements	**D&I**	Research topic diversity, rather than ethnic, gender and socio-economic diversity, was an explicit aim of this programme. Thus, transdisciplinary actors were involved in a thorough exploration of possible research themes very early in the programme. Selection of research themes was based on scientific and societal criteria. In addition, funding was determined by societal actors who had to contribute up to 50% of the funds.
	O&T	*No data*
	A&R	The main programme topics were climate resilience and climate adaptation. Projects considered possible impacts of climate change and subsequent climate adaptation measures early in the policymaking and innovation processes. Many resulting research projects studied risks and benefits, such as flooding of unembanked areas, insurance in high-risk flood areas and urban health stress. Some projects also studied citizens' values (how citizens regarded living in areas associated with high-flood risks).
	R&AC	A broad array of stakeholders participated in the programme committee, regional hotspot coordination or research projects. On all three levels, stakeholders were expected to actively contribute to cognitive processes; thus, they were co-constructing R&D agendas and becoming aware of other actors' perspectives. Some projects led to direct changes in policy schemes or to the creation of concrete building projects. Though there was no direct involvement by societal stakeholders, external pressures were considered.
Outcomes		After developing adaptation strategies, the programme established a climate knowledge facility, which focused on generic long-term knowledge issues and actively participated in knowledge transfer so that the knowledge generated through the programme was available in the Netherlands and internationally. The programme's approach was exported to other delta regions and cities with similar climate resilience issues (e.g., Shanghai and Jakarta).
Lessons/standards		Knowledge co-creation aids effective research practice, increases understanding of each other's values and disciplines, and encourages network building and inclusiveness. The chance of producing successful and feasible adaptation strategies is considerably greater if there is good cooperation between all relevant stakeholders and if the development of knowledge is actively demand driven.
Website		www.knowledgeforclimate.nl (English version) www.kennisvoorklimaat.nl (Dutch version)

Name of practice		SCREEN
Leading Organisation(s)		De Bascule (VU University Medical Centre) UvA (University of Amsterdam)
Type of practice		Project
Launch date **End date**		1-1-2013 1-1-2017
Policy agenda		Public engagement
Grand Challenge		7. Secure societies - protecting freedom and security of Europe and its citizens
Research theme		Social science & humanities
Summary		The SCREEN research project studies juveniles in five juvenile detention centres. One part focuses on a computer-based training programme to decrease relapse rates in juveniles addicted to cannabis. (This programme has proven effective for alcohol use in adults.) The other part focuses on neurobiological predictors (measured by heart rate and cortisol levels) of recidivism among juvenile inmates.
Process requirements	**D&I**	Assistants (students and recent graduates) perform much of the day-to-day research activities. Though most of the assistants are female, attempts are made to include males. Due to cultural differences, some juveniles have difficulty acknowledging female authority; this issue is addressed in training sessions and in meetings with juvenile participants. Informal conversations between researchers, assistants, practitioners (detention centre staff) and juvenile participants help ensure that multiple perspectives are considered in day-to-day issues.
	O&T	Targeted information is disseminated through meetings with specific stakeholder groups (project members, Ministry of Justice and Security representatives, an embedded social scientist) in which organisers provide project updates and receive feedback.
	A&R	At this stage, the focus is mainly on day-to-day affairs. Researchers and practitioners discuss their perspectives and the intended and unintended consequences of research activities. Planning focuses on short-term goals to facilitate adaptation in response to changing needs. Researchers and practitioners are very aware of existing views on toughening the juvenile penal system in the Netherlands. They try to keep attention on the issues through meetings with the Ministry of Security and Justice and through the mass media.
	R&AC	Practitioners and researchers realise that they have different needs, concerns and perspectives. Thus, they try to accommodate each other in both big (research direction) and small (day-to-day) issues. Though practitioners try to be as flexible as possible, they are limited by government regulation. Researchers amend methods when possible and offer to compensate the time needed for research with activities the researchers can do for the practitioners.
Outcomes		Approximately 150 juveniles have participated in the research. The usefulness of the computer training and the measures to predict recidivism will not be known until all data collection and statistical analysis is completed.
Lessons/standards		Collaboration is a team effort that may require careful attention and tending in its early phases. The focus should be on the organic emergence of team roles, instead of planning those from scratch. Collaborations should be approached as processes that build long-term relationships; participants must be flexible, without compromising their own integrity or that of their institutions.
Website		*No Data*

Portugal

Name of practice		Collaborative solutions for improvement of data-limited fisheries systems
Leading Organisation(s)		General Directorate of Natural Resources, Safety and Maritime Services (DGRM) Portuguese Institute of the Sea and Atmosphere (IPMA) ArtesanalPesca
Type of practice		Project
Launch date		*No data*
Policy agenda		Governance Public engagement
Grand Challenge		5. Climate action, environment, resource efficiency and raw materials
Research field		Fisheries & Aquaculture
Summary		Stakeholder participation is a key feature in risk-based frameworks used to assess and promote sustainable exploitation in fishery systems, but participants usually have limited opportunity to influence the scope and rules of interaction. Thus, this project extended the approach of stakeholder engagement so that the scope and rules of interaction were decided by the participants themselves. The aim was to improve understanding of the main problems in the fisheries system and of negotiating solutions meaningful to all participants.
Process requirements	**D&I**	Social diversity was explicitly addressed regarding positions in and knowledge of fisheries systems (e.g., scientific, professional and managerial). All stakeholders were involved at all four stages, and participants decided whether to move on to the next stage. Though gender was not explicitly addressed, stakeholder composition was gender balanced.
	O&T	Stakeholders had access to all information about the specific issue of focus and jointly authored all reports and scientific papers.
	A&R	*No data*
	R&AC	The project consisted of successive, iterative steps. Explicit understanding and consensus about others' perspectives was required to progress to the next step.
Outcomes		Stakeholders addressed issues such as bioeconomy; food security; sustainable agriculture and forestry; and marine, maritime and inland water research. Responsible publics and actors were explicitly addressed and engaged.
Lessons/standards		The project facilitated relevant discussion of fishery-related issues and placed critical decision making in the hands of the group, which ensured the involvement of critical stakeholders in finding collectively accepted solutions to fishery problems. The implementation of several of the identified solutions falls within the remit of the involved stakeholders, although some require action at a wider geographic and governance scale. Future projects could benefit from including NGOs and those with less knowledge of fisheries systems, who could contribute to wider societal involvement and communication.
Website		*No Data*

Name of practice		Economic valuation of services and governance of coastal and marine ecosystems
Leading Organisation(s)		Gulbenkian Oceans Initiative of Calouste Gulbenkian Foundation
Type of practice		Project
Launch date		March 2014
Policy agenda		Science education Governance Public engagement
Grand Challenge		5. Climate action, environment, resource efficiency and raw materials
Research field		Fisheries & Aquaculture
Summary		The project researches specific services of marine and coastal ecosystems in the region between Peniche and Nazaré, an important fishing area in Portugal. Inspired by the work of TEEB - The Economics of Ecosystems and Biodiversity, the project is generating information on the value of the benefits provided by the marine environment. These values, which are not exclusively monetary ones, will make clearer for decision makers and policymakers the environmental and economic implications of their ocean-related decisions.
Process requirements	**D&I**	Stakeholders (policymakers, civil society organisations, business and industry representatives, and researchers and innovators) are involved in different degrees throughout the project.
	O&T	Stakeholders have access to project information, and some research data is already being shared and co-produced with researchers external to the project. The project publicizes its findings in different ways, including through policy briefs, which are written in non-technical language suitable for the intended audiences. Provisional results were recently released in a policy brief available online (see URL below), and contribute to identify and solve specific societal problems. Creative visual tools and graphics, and different types of media (social, regular, websites) are preferred. What sets this project apart is the way different participants have access to the project's materials and results. Importantly, all the "non-experts" participants are also identified as authors of the deliverables.
	A&R	*No data*
	R&AC	*No data*
Outcomes		The project is bridging the divide between natural (biology) and social (economics) sciences, and its interdisciplinary practices are slowly "spilling over" to other research organisations. More detailed and single-issue policy briefs will be released before the project ends in late 2016.
Lessons/standards		*No data*
Website		www.gulbenkian.pt/Institucional/en/Activities/ProgrammesAndProjects/GulbenkianOceansInitiative

Name of practice		Marlisco (Marine Litter in European Seas - Social Awareness and Co-Responsibility)
Leading Organisation(s)		Provincia di Teramo, Italy Faculdade de Ciências e Tecnologia - Universidade Nova de Lisboa, Portugal
Type of practice		Project
Launch date **End date**		1-6-2012 31-5-2015
Policy agenda		Open access Science education Governance Public engagement
Grand Challenge		5. Climate action, environment, resource efficiency and raw materials
Research theme		Environment
Summary		Marlisco aimed to 1) raise public awareness about the consequences of common behaviour related to waste production and management in socio-ecological marine systems, 2) promote co-responsibility among involved actors, 3) define a more sustainable collective vision for the use of the ocean, and 4) facilitate grounds for concerted actions. It therefore facilitated a mutual mobilisation and learning process among key stakeholders from industry, science, society and end users in 15 European countries. This process included the development of an action plan to change societal attitudes and perceptions.
Process requirements	**D&I**	The project deliberately tried to increase the diversity of participants. Engagement modalities varied from surveys to online forums to live forums to campaigns. Many activities took place near the public, that is, in regular, accessible venues around the country, including public libraries, schools, city halls, beaches, science centres and theatres.
	O&T	Most of the substantive project reports are available online, some accompanied by summaries and visualisations of selected results. The project included nationwide public presentations of these results, which were based on clear, visual information. Some material was prepared by participating stakeholders (e.g., teachers and students), who incorporated songs, videos, short stories and exhibitions.
	A&R	Inviting stakeholders to open up to each other was one of the aims of this project. Different formats and platforms for more- or less-structured dialogue were made available, depending on the specific groups of stakeholders involved. Formats and platforms included surveys; participatory exhibitions; songs, short stories and video contests; online and live forums in different places and contexts; and practical activities, such as collective beach cleaning.
	R&AC	As organisers started to understand what stakeholders knew about marine litter (its legislation, regulation and good practices), this was translated into stakeholders' information needs. All activities were designed according to those needs, and partnerships were established to help address them.
Outcomes		The project explicitly aimed to develop tools and platforms for engagement and dialogue between stakeholders that can be used to address other societal challenges. MARLISCO products: • Best practices - Collection of 72 best practices (http://www.marlisco.eu/best-practices.en.html) • MARLISCO Best Practice Guide (http://www.marlisco.eu/best-practice-guide.en.html) • Serious game - An interactive game on marine litter (http://www.marlisco.eu/serious-game.en.html) • Troubled Waters - An interactive web-documentary (http://www.marlisco.eu/troubled-waters.en.html) • Education - educational material "Know Feel Act! To Stop Marine Litter" (http://www.marlisco.eu/education.en.html) A major opportunity that emerged from this practice – as a possible venue for the continuation and development of its initiatives – was the creation of the Portuguese Marine Litter Association. If and how the results will be considered at the governance level is not yet clear.
Lessons/standards		By effectively distributing RRI activities among stakeholders (through O&T), Marlisco highlights RRI's potential in sharing responsibilities for societal challenges in ways that build on individual stakeholders' unique strengths and opportunities.
Website		www.marlisco.eu www.marliscoportugal.org

Spain

Name of practice		Fundación Ibercivis
Leading Organisation(s)		University of Zaragoza – Institute for Biocomputation and Complex Systems Physics (BIFI-UNIZAR)
Type of practice		Organisation
Launch date		*No data*
Policy agenda		Ethics Open access Science education Governance Public engagement
Grand Challenge		6. Europe in a changing world - inclusive, innovative and reflective societies
Research field		Science with and for society
Summary		Ibercivis aims to promote public engagement in science by supporting citizen science experiments and funding a wide range of projects, mainly at scientific, economic, educational and policy levels. Ibercivis activities include research support (software development, middleware adaptation or hardware hosting), scientific communication and engagement plans (dissemination, outreach and inreach), and participatory experiment management (design and production, competitive funding calls, public spaces, or education programmes). Ibercivis has carried out more than 40 participatory experiments, involving over 50.000 volunteers, in a wide range of knowledge areas (fundamental physics, biotechnology, digital social sciences, humanities, and so on). In addition to publications and doctoral theses, participatory policy agendas linked with citizen science have been produced.
Process requirements	**D&I**	Public, private and government stakeholders were involved in the organisation's strategy development. External advisors and open consultations with civil associations help to ensure that perspectives of different groups are taken into account.
	O&T	Information (goals, procedures, expectations, progress, research data) are available to all stakeholders through multiple outlets: public repositories for software and tools, audiovisuals for alternative methods of reporting procedures, and open licences for outcomes. Multimedia content is translated and software code is documented so it can be easily reused.
	A&R	Flexible management and collective decision-making processes help Ibercivis anticipate possible consequences. Public fora such as the Future Innovators Summit promote reflection that helps refine ideas and plans. Ibercivis challenges itself every day and tries to push things forward in new, unexpected ways.
	R&AC	Ibercivis promotes inclusive activities that bring together unexpected participants acting as facilitator for outsiders to ensure a transdisciplinary approach. They emphasise consideration of new concerns and ideas and try to include recommendations into their own workflow.
Outcomes		Citizen science has resulted in scientific production, learning and community-based solutions. Ibercivis successfully promotes engaged publics, responsible actors and institutions, and ethical and socially desirable R&I to find solutions to societal challenges.
Lessons/standards		With its focus on public engagement and other RRI standards, citizen science has gained international popularity and political support.
Website		www.ibercivis.es

Name of practice		InnovAcciones 360°
Leading Organisation(s)		Instituto de Ciencia y Tecnología de Polímeros (ICTP) del Consejo Superior de Investigaciones Científicas (CSIC)
Type of practice		Project
Launch date **End date**		01/09/2012 30/09/2013
Policy agenda		Public engagement
Grand Challenge		2. Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy
Research field		Food
Summary		InnovAcciones 360° was a project of open innovation and citizen participation in the food packaging sector. It aimed to turn citizens into drivers or players in RDI, with the ultimate goal of fostering innovation through a circular flow of information, from the end user of food packaging to scientists and SMEs. The novel aspect of this project was that ideas would come from citizens and, after a process of research and development led by scientists and companies, would return to citizens in the form of new and enhanced products. The project was divided into several networking public meetings stakeholders from different areas. 1st Networking – Trends and Experiences: Researchers, businesses and consumers met together to discuss food packaging requirements and develop ideas for innovations to meet societal needs. 2nd Networking – Specificity towards innovation: Scientists and companies met to study the feasibility of potential R&D projects raised by citizens in the first round.
Process requirements	**D&I**	A wide range of stakeholders was included: scientist, businesses and consumers to diversify the sources of expertise and perspectives. The final selection of consumers included end users with different food packaging experiences (hauliers, homemakers, catering workers, and so on). Although gender was not considered as a selection criterion, it was balanced in the final composition of the panel.
	O&T	At the end of the first networking session, all participants received a summary report of the full session, written in accessible language. Results of networking were broadcasted and covered live through social media. A final report was published in a specialised magazine.
	A&R	Mixed groups encouraged stakeholders to reflect on their own needs, but also the needs of other stakeholders. When groups were mixed, reflection on benefits and risks was highly enriched due to participants' differences in background and expertise.
	R&AC	This project marked an institutional precedent that has contributed to rethinking the relationship between researchers, citizens and industry. Researchers involved in the project valued the interactions and saw how such interactions could enrich their work.
Outcomes		The project resulted in increased understanding between different stakeholders and ideas for packaging innovations.
Lessons/standards		Increasing interactions between stakeholders is positive and enhances outcomes. Citizens are willing to contribute to innovation processes and to discuss their needs and concerns with experts; utilising different forms of media can encourage and maintain their involvement. Though this project focused on the food packaging sector, it is transferrable to almost any industrial sector.
Website		www.ictp.csic.es/ICTP2/es/InnovAcciones360

Name of practice		Xplore Health
Leading Organisation(s)		IrsiCaixa, Obra Social "la Caixa" Barcelona Science Park Amgen
Type of practice		Project
Launch date		1-5-2010
Policy agenda		Gender Ethics Science education
Grand Challenge		1. Health, demographic change and wellbeing
Research theme		Health
Summary		Xplore Health is a European educational programme offering participative multimedia and hands-on resources with the aim of decreasing the gap between health research and education. The programme promotes inquiry-based science education (IBSE) and student interaction with different social actors so that students may become active citizens who promote RRI in the knowledge society. It is run through the internet, schools, research centres and science museums. Through innovative multimedia tools and a teacher training programme, Xplore Health aims to bridge the gap between research and education, inspire future researchers, promote scientific literacy and stimulate dialogue that contributes to RRI in healthcare.
Process requirements	**D&I**	The project promotes the inclusion of a diversity of topics, including scientific, ethical, legal and social aspects. Videos, virtual experiments and games are gender balanced. Students are invited to reflect on implementation of RDI results and are then encouraged to contact policymakers, journalists, and the like to suggest improvements. Research and industry experts are interviewed during the exploration phase before students can start contacting other stakeholders.
	O&T	The website is open to all stakeholders, but it is specifically aimed at and tailored to secondary school students. Xplore Health believes that students themselves can contribute much to openness and transparency; if they are trained to reflect, they can share both scientific and reflexive capital with their communities.
	A&R	The discussion continuum and PlayDecide card games invite students to reflect on the risks, benefits, values and purposes of health-related issues and to anticipate RDI consequences.
	R&AC	Most of the worksheets on the website invite students to finalise their learning experience by creating a product (e.g., letter, exhibition, communication campaign, community intervention) that is shared with pertinent stakeholders. The changes implemented within these stakeholders' structures and systems have not been analysed. In response to student topic choices, Xplore Health is adapting by beginning collaborations with different stakeholders; it is also facilitating the application of RDI methodological changes based on student input.
Outcomes		Currently the three clusters of pilot schools located in three areas in Spain are working on projects to implement RRI in schools. During 2014 Xplore Health has doubled traffic to the website (5.000 students visit the portal every month).
Lessons/standards		Xplore Health showcases an innovative educational infrastructure that helps future generations of R&I-related professionals to learn and apply RRI skills today, while inspiring current R&I professionals to join them.
Website		www.xplorehealth.eu

Sweden

Name of practice		Challenge-driven innovation (CDI)
Leading Organisation(s)		VINNOVA, Sweden's innovation agency
Type of practice		Programme
Launch date		1-5-2011
Policy agenda		Gender Ethics Open access Science education Governance Public engagement
Grand Challenge		1. Health, demographic change and wellbeing 5. Climate action, environment, resource efficiency and raw materials 6. Europe in a changing world - inclusive, innovative and reflective societies
Research theme		Science with and for Society
Summary		CDI aims to address societal challenges with research and innovation by building consortia involving all relevant stakeholders and the full value chain. Consortia define specific challenges and ways to tackle them. To meet funding criteria for each of the three stages, consortia must have a problem-oriented and transnational approach so that societal challenges are addressed at a system level. They must also include one or more project partners who have a strong interest in the results as well as the ability to utilise those results. Finally, consortia must also create an impact logic model outlining the expected short- and long-term outcomes of the project.
Process requirements	**D&I**	There are no restrictions on which research topics, disciplines, sectors or stakeholders to involve, but, all necessary factors, including end users, must be involved to address the challenge and get funding. All stakeholders are involved in all activities during all stages. Stage 1: building the consortium, defining the challenge, determining how to tackle it. Stage 2: collaboration, development and integration, restricted tests, user involvement. Stage 3: implementation, full-scale tests in real environments, demonstrations, user involvement.
	O&T	As more projects go through the programme, the number of examples of successful projects that demonstrate good communication increases. Over time there will be greater openness; initially, the lack of project examples meant that many applicants struggled to translate the vision of the program into relevant proposals.
	A&R	Anticipation and reflection are built into the project description: challenges are outlined, and there is reflection on the type of innovations (social, technical or a combination) needed to address them. End users must be consulted from the start, and their values and thoughts considered. Prior to the start of each new project phase, stakeholders must reflect on and update the impact logic model.
	R&AC	Between each stage of the process, consortia must conduct new market research and update the problem description and impact logic model, which ensures new conditions are taken into account. Consortia are required to start taking ownership of the expected outcomes during the project.
Outcomes		Stage 3 Implementation: 17 projects have so far qualified for funding of this stage and have taken steps towards utilising the developed innovations or research results.
Lessons/standards		By not only stimulating mutual learning but also enforcing, via funding requirements, the collective ownership of a specific societal problem and a marketable approach to its solution, including risks and rewards, CDI shows its participants that the process requirements for RRI are not just in the interest of society-at-large but very much in their own interest as well. CDI showcases RRI's potential as a win-win governance approach for all involved stakeholders.
Website		www.vinnova.se/en/

Name of practice		Diversity in the computer games industry
Leading Organisation(s)		Praxikon Swedish Games Industry
Type of practice		Project
Launch date		20-3-2013
Policy agenda		Gender Public engagement
Grand Challenge		6. Europe in a changing world - inclusive, innovative and reflective societies
Research theme		Information & Communication Technologies
Summary		The project aims to increase diversity (including gender, ethnicity, sexuality and function) in the computer games industry so that the industry becomes more inclusive, reflective and innovative, and people feel more comfortable playing and developing more types of computer games. It is a long-term project divided into three steps: 1) analyses of conditions, obstacles and opportunities for diversity in the games industry; 2) analyses of game development processes from a diversity perspective; 3) analyses of game companies' work environments, including recruitment processes, from a diversity perspective. Though the project works on local, regional and national levels, it is quickly reaching the international level due to the global nature of the computer games industry.
Process requirements	**D&I**	The project has promoted the inclusion of diverse research topics, portfolios and perspectives: Firstly, by considering the entire game sector and collaborating with representatives from that sector; secondly, by working in an interdisciplinary manner and using a 'practice analysis' research method that operates on micro, meso and macro levels. This project distinguishes itself from others with the scale at which collaboration within the whole innovation system in a specific sector has been implemented (game companies, game education institutes, gaming communities). A central goal is diversity, at all levels, and also all aspects of diversity.
	O&T	Regular communications on all aspects of the project are shared with representatives from the many different stakeholder groups. In addition, one of the tasks of the non-profit organisation Diversi is to communicate about its work to the computer game sector and to the public, which it does through a website, social media, meet ups and conferences.
	A&R	Through its use of practice analysis, the project analyses obstacles/risks and opportunities for diversity in the game industry and in game development processes. Reflection on existing beliefs and ways of thinking is done by continuously challenging and exploring the concept of diversity as it applies to the computer games sector.
	R&AC	The main goal of the project is to implement changes in existing structures and systems based on stakeholders' desire for more diversity. To this end, collaborations with stakeholders have encouraged open communication, which has increased recognition of each other's needs, concerns and perspectives. In addition, the project continuously redesigns and modifies each step, as well as the aims and scopes, based on internal and external factors.
Outcomes		A main outcome is Diversi, an innovative non-profit organisation that works as a new kind of platform for increasing diversity in the computer game sector. Diversi provides channels and forums for the exchange of knowledge and ideas, supports and creates collaborations, and gives stakeholders the opportunity to recognise and reward each other's diversity efforts.
Lessons/standards		The project shows how all aspects of RRI can be utilised to effect change in business sectors, which may ultimately result in broader societal changes.
Website		www.diversi.nu

Name of practice		Mistra Urban Futures
Leading Organisation(s)		Swedish Foundation for Strategic Environmental Research (Mistra) Chalmers University of technology Gothenburg University
Type of practice		Programme
Launch date **End date**		1-1-2010 31-12-2019
Policy agenda		Gender Ethics Open access Science education Governance Public engagement
Grand Challenge		4. Smart, green and integrated transport 6. Europe in a changing world - inclusive, innovative and reflective societies
Research theme		Science with and for Society
Summary		This programme was established to address sustainable urban development issues with a transdisciplinary approach that uses reflective co-creation and co-production of knowledge as key methodologies. This is primarily done through collaborative projects, where each project has dual leadership: one researcher, one practitioner. Comparative analyses between projects in the same field and between projects in different locations are being developed and will be more prominent during the centre's second phase of activities, 2016–2019.
Process requirements	**D&I**	The strategic plan for the second phase raises gender equality issues and intends to implement guidelines for projects. Social inclusion is part of the research and knowledge production agenda, particularly in activities and projects related to the centre's objectives of fairness and accessibility. The centre also strives for diversity in topics, portfolios and perspectives. Though research themes reflect the competitive strengths and needs of stakeholders, the programme encourages participation from a wide range of academic and non-academic stakeholders in the production of knowledge.
	O&T	Funding and support procedures are described in Swedish and English on the organisation's website, which all stakeholders can access. The programme promotes dissemination of results and findings through scientific (journal articles, science newsletters) and non-scientific (reports, policy briefs, events, films) channels.
	A&R	Major stakeholders elect the programme's board, with the goal of maximising global experience and knowledge. All participants reflect on risks, benefits and existing beliefs to develop and modify the focus of projects. For example, an initial focus on 'dense cities' gradually developed into a focus on 'accessibility', a larger context that includes density.
	R&AC	By involving both academic and practicing stakeholders, the programme emphasises open communication and mechanisms that increase the visibility of needs and the accessibility of results. Perspectives and needs are considered in proposals to change or adapt existing activities, while external factors are considered in position papers concerning specific aspects of the field of interest. Carefully designed, transdisciplinary approaches, co-creation and co-production of knowledge provide a kind of inclusive, bottom-up way of working that is at the same time inclusive and empowering, and may produce valuable data and qualitative findings that may be fed "upwards" into regional, national and international systems for planning, resource allocation and sustainability initiatives. A very recent example is the work being done for the Urban Sustainable Development Goal that is expected to be adopted by the UN General Assembly later this year. Mistra Urban Futures has led an international study on indicators on local level, with local authorities and other stakeholders.
Outcomes		More than 50 projects, in four locations, have been initiated. Dissemination and discussion of results have taken place through events, reports and a variety of academic and non-academic publications. Outcome studies at all four locations have emphasised the local stakeholders' perceived value of the collaborative work process, as well as the works' impacts (for example, on local policy development).
Lessons/standards		Introducing transdisciplinary and collaborative research and knowledge production takes time and includes development of new frames of reference, as well as new working modes and tools. The programmes' general experiences are transferable to any kind of collaborative work involving multiple stakeholders. Lessons learned point at the importance of patience and allocation of time for the processes of establishing working relationships. The other side of that coin are the overall positive, enthusiastic and engaging comments concerning the values of the process and methodologies using transdisciplinary and collaborative approaches to problem definition, data and analyses. The independent "outcome studies" produced during 2014 for all four interaction platforms of Mistra

	Urban Futures (Gothenburg, Manchester, Kisumu, Cape Town) describe the co-production of knowledge as most valuable, producing insights and results that would not have been reached without the other partners.
Website	www.mistraurbanfutures.org

Name of practice		Smedpack
Leading Organisation(s)		Innventia (consortium consisting of 32 organisations)
Type of practice		Project
Launch date **End date**		1-11-2011 1-12-2017
Policy agenda		Governance Public engagement
Grand Challenge		1. Health, demographic change, and wellbeing
Research theme		Health
Summary		Smedpack is a collaborative research project involving a wide consortium of stakeholders: regulators, pharmacies, academia, civil society organisations, the pharmaceutical industry, and logistics and packaging companies. It aims to prevent counterfeit medicines from entering the legal distribution chain, through concepts for secure pharmaceutical packaging. New packaging concepts (e.g., secure seals, unique serial numbers, apps) will make it easier for consumers and supply chain actors to distinguish genuine products from counterfeit. The ambition is to develop industrially realisable solutions that entail new commercial opportunities.
Process requirements	**D&I**	Pharmaceutical packaging must be designed so the largest consumers of medicine, the ill and the elderly, can easily handle it. Products must also meet the needs of people from different cultures and who speak different languages. Consumer focus groups were asked their views on packaging, and researchers from different disciplines were consulted. The project has been a meeting place for all actors in the supply value chain.
	O&T	Tailored, informative and easy-to-understand mailings regarding the focus groups were sent to consumers. Otherwise, public communication about the results of the project have been kept to a minimum to keep strategies and results secret from the illegal industry of counterfeit medicines.
	A&R	Smedpack is Sweden's proactive response to the discovery of counterfeit medicines discovered in the stock of legal pharmacies in other countries. The project has collected end users' views on how they currently use medicines, what opportunities they see for improvement and what they think about security issues. Counterfeit medicines are not a problem in Sweden yet, but will probably become. The project has used workshop scenarios where the partners have cooperated and discussed different future scenarios. The consortium including all stakeholders in the value chain has helped everyone understanding each other´s concerns and perspectives.
	R&AC	The project is a collaboration involving the entire value chain. Stakeholders in the consortium enrich each other by sharing their perspectives and knowledge. Participants have expressed that they understand each other better and have learned a lot from each other, which has benefited project outcomes. The project recognises that it must continually adapt to results and suggestions from its wide range of stakeholders and to changes in the counterfeit medicine industry.
Outcomes		To date, a large number of new packaging designs have been tested by users in different environments. Stakeholders have developed new marketing channels and business partnerships, and logistical solutions have been developed and evaluated.
Lessons/standards		Thinking big right from the start can result in achieving more than may have been expected. By having a wide variety of stakeholders involved, those who are more constrained by current practices and legislative restrictions are balanced by those who feel more free to be visionaries, which benefits both.
Website		www.innventia.com/en/

United Kingdom

Name of practice		EPSRC Framework for responsible innovation
Leading Organisation(s)		Engineering and Physical Sciences Research Council (UCL)
Type of practice		Tool
Launch date		11-1-2013
Policy agenda		Gender Ethics Open access Science education Governance Public engagement
Grand Challenge		6. Europe in a changing world - inclusive, innovative and reflective societies
Research field		Science with and for Society
Summary		As a public funder of research, EPSRC has a responsibility to ensure that its activities and the research it funds are aligned with the principles of responsible innovation, creating value for society in an ethical and responsible way. To this end, EPSRC worked with stakeholders to develop a flexible framework that researchers can use to ensure the principles of responsible innovation are incorporated in their studies. The EPSRC Framework originally started as a proposal from the research council's own Societal Issues Panel, and was then approved by its Council – the overall governing body. It has generated a number of important outcomes for its own research communities and its partners.
Process requirements	**D&I**	The framework for responsible innovation drew on the experiences of researchers across the range of disciplines and projects funded by EPSRC. Besides researchers, stakeholders included policymakers and civil society organisations.
	O&T	A website was created to set and make available RRI expectations for researchers and research organisations funded by EPSRC.
	A&R	The framework promotes reflection, understanding and training about responsible-innovation approaches within the wider research community, encouraging broader interactions with other disciplines and spheres of expertise.
	R&AC	The framework encourages vigilance for potential social, environmental, ethical and regulatory challenges that could arise from new research.
Outcomes		The developed approach provides a framework for ensuring RRI standards become an integral part of all research and innovation endeavours. The concepts of responsible institutions and ethically acceptable and socially desirable R&I were explicitly addressed. The RI Framework introduced the concept of "life cycle assessment" so that issues around responsible innovation were continuously assessed throughout a particular project. As a result of the RI Framework, there have been public dialogues on synthetic biology, geo-engineering and nanotechnology in medicine, for example. According to the (former) CEO of EPSRC, what emerged from these was broad public support for research and innovation. In the case of synthetic biology, citizens were very concerned that researchers have at the forefront of their thinking the dangers that could be involved with the research they were doing. But they were not against speculative or "adventurous" research projects. Although there is a serious gender imbalance in the research community in engineering and the physical sciences, with far more men than women, this was not the case during the dialogue exercises, with female citizens being at least as many, if not more than, their male counterparts. As a result, researchers adapted their viewpoints to take into account issues raised with them by women in the consultation groups. One area in which the Council learned of public concerns was theragnostics – the use of nano-scale devices to diagnose conditions and to deliver appropriate medicines. Citizens felt that they did not want to take the human factor out of diagnoses and treatment, and this was taken on board by the research community. As a result of the adoption of its RI Framework, EPSRC has ensured that its ~130 Doctoral Training Centres include aspects of responsible research and innovation in the "curriculum" that they deliver to PhD students, including public engagement. EPSRC is engaging with Shell, one of its major industrial partners, to share experiences on responsible innovation.
Lessons/standards		Incorporating diverse perspectives at the beginning of a project, or at least as soon as possible, is an essential part of RRI standards. To effect change, government policymakers and regulators should be alerted to emerging issues and opportunities as soon as they become apparent.
Website		https://www.epsrc.ac.uk/index.cfm/research/framework/ and https://www.epsrc.ac.uk/research/framework/area/

Name of practice		HAO2
Leading Organisation(s)		HAO2
Type of practice		Organisation
Launch date		1-1-2006
Policy agenda		Ethics
Grand Challenge		Informatics
Research field		6. Europe in a changing world - inclusive, innovative and reflective societies
Summary		The aims of HAO2 are to: 1) be profitable; 2) promote the inclusion of individuals who are often excluded from employment, both through the manner in which HAO2 is run (promoting this through communication) and by enabling them to enter the workplace by using training (for example on communication skills, team work or interview skills); and 3) develop innovative products that benefit users and improve their quality of life. An example of this is the 3DNovations Hub, developed by and for people with autism, which is aimed at local authorities or partnerships that want to create more vocational training and employment opportunities for people with autism.
Process requirements	**D&I**	The CEO of HAO2 believes that ongoing stakeholder involvement is necessary to achieve effective and profitable products. To enable the inclusion of those who may be excluded from common engagement methodologies (e.g., focus groups), the company uses a wide range of engagement methodologies, such as instant chat, video chat, surveys and interviews. For the 3DNovations Hub, HAO2 conducted a feasibility study, together with a university, an NGO and a governmental organisation, and a pilot with a city council, governmental organisation and a school for young children with special needs.
	O&T	*No data*
	A&R	The company supports businesses reflecting on existing beliefs about employing people with disabilities by taking every possible opportunity to communicate about this topic (at public events and newspaper articles). It also does this internally by ensuring their core values inform the way the business is run – from inclusive design of new products to growth and investment strategies. By having engagement embedded in every stage of the process, the company is able to reflect on its position and review how products or processes may need to be changed.
	R&AC	The company works through a process of user led design. Nikki Herbertson, the CEO and founder, believes that only people with autism can provide the insight needed for useful research and development in this area. In addition, to promote sustainable processes and sustainable solutions, people with autism should participate as researchers and citizen researches, rather than just as a focus group.
Outcomes		One large pharmaceutical firm has now undertaken to employ 1% of its workforce made up of people on the autistic spectrum. With support of UK Trade & Investment (a governmental organisation), HAO2 has recently expanded into China, a major opportunity from a business perspective. The UK Minister for People with Disabilities has made use of the new Autism Innovation Meet-up grid and Hao2 has been able to introduce the RRI Tools project to the Minister as a result.
Lessons/standards		Hao2 shows that RRI can contribute to the development of innovative products, commercial viability and socially desirable outcomes rather than be an obstacle for businesses.
Website		www.hao2.eu

Name of practice		Research; Increasing value, reducing waste
Leading Organisation(s)		Research; Increasing value, reducing waste The Lancet (medical journal)
Type of practice		Project
Launch date		1-1-2014
Policy agenda		Ethics Open access Science education Governance Public engagement
Grand Challenge		1. Health, demographic change and wellbeing
Research field		Health
Summary		This project raises awareness of flaws in the current medical research system that diminish the value of research and often result in significant financial loss: asking the wrong questions, poor research designs, unpublished negative results, poorly reported findings. Through its website and articles published in peer-reviewed journals, the project aims to encourage discussions about medical research practices and effect changes that increase the value of research and decrease the occurrence of wasted research.
Process requirements	**D&I**	The project addresses how the entire process of medical research (from agenda setting to sharing results to evaluation) can become more effective, transparent and inclusive. One solution is to increase diversity by including patients and medical caregivers in setting the research agenda. The website brings attention to certain flaws in the research enterprise, such as the lack of diversity in research topics, portfolios and perspectives.
	O&T	Through the project's website documentation, information, and resources on how to increase the value of research is shared, as well as on how to reduce or avoid wasting research. In its series of five articles published in *The Lancet*, the project recommends more transparency in research processes, beginning by making information (publicly) available about how research funders decide what research to support and what research protocols or analysis plans are chosen, to sharing raw data to promote reuse of original datasets.
	A&R	Many research practices have unintended negative consequences. The website opens up discussion on current practices that require thoughtful consideration of possible outcomes to avoid wasted effort. The project also reflects on motivations, both good and bad, that drive researchers, research funders, pharmaceutical companies, regulators and institutions in biomedical research. Economic pressures and desires to maximise pharmaceutical and publishing industry profits encourage distorted trial designs and dissemination of poor research.
	R&AC	A series of five papers written by groups of stakeholders from different parts of the research and innovation process were published in *The Lancet*, a high-profile journal. They showed how problems in medical research arise in various parts of the process and require a collaborative approach to address them. Since then the project has also linked in with other initiatives such as the AllTrials campaign, which argues that all trials and all results need to be reported. Key figures of the project have set out a range of recommendations that explain what changes should be made to existing structures and systems.
Outcomes		One of the main results has been a symposium held by the Department of Health and *The Lancet* to discuss the issues addressed by the website and the lecture series. The symposium was attended by senior representatives from across the medical research field (policymakers, funders, researchers, journal editors) – the issue of waste in medical research has been put on the agenda.
Lessons/standards		Working together, high-profile stakeholders from various backgrounds can get an issue on the map, even if it addresses shortcomings in the values and culture of their own professional community. Collaboration between stakeholders is vital for initiatives that strive for change towards RRI.
Website		www.researchwaste.net

Annex 1 Hubs contributing to the collection of promising practices

Hub	Hub leader
Austria and Slovenia	Zentrum für Soziale Innovation
Belgium and Luxembourg	King Baudouin Foundation
Bulgaria and Romania	The Ruse Chamber of Commerce and Industry Association
Czech Republic	Techmania Science Center
Denmark	Experimentarium
Estonia, Latvia, and Lithuania	AHAA Science Centre
France	Science Animation Midi-Pyrénées
Germany	Bonn Science Shop
Greece and Cyprus	Ellinogermaniki Agogi
Hungary	Mobilis Science Centre
Ireland	Science Gallery Dublin
Italy and Switzerland	Fondazione Cariplo
Netherlands	Athena Institute
Poland	Foundation for Polish Science
Portugal	Ciencia Viva
South Eastern Europe (SEE)	Centre for the Promotion of Science
Spain	IrsiCaixa
Sweden	Vetenskap & Allmänhet
United Kingdom (UK)	University College London (UCL)

Annex 2 Online Survey

Questionnaire
Promising practices for RRI Tools

Welcome!

We have designed this questionnaire to collect data for the classification of promising practices in RRI. After you have held the stakeholder workshop, you will choose five to eight promising practices (from the list of promising practices collected in step 2, see methodology) in consultation with the Athena Institute. For each one of this practice, you are asked to fill in the questionnaire. This means that every Hub will submit five to eight questionnaires in total.

We have tried our best to design the questionnaire as clear and accessible as possible. Your input in this part of data gathering is essential and highly valued. We trust that you are (in the process of becoming) an expert in RRI and are comfortable to rely on your experience and insight in filling in this questionnaire. However, if you experience difficulties, please do not hesitate to contact us.

Information about the promising practice can be collected through desk research on the promising practice and/or by interviewing a key person from the practice. In that case, the questionnaire can be used as interview guide.

By the end of step 3, we will have a database of promising RRI practices available. When all the Hubs have filled in the questionnaire, the selected promising practices will be analysed in order to identify (common) relevant characteristics, weaknesses and strengths.

Thank you very much for

your cooperation. Kind

regards,

The Athena Team

Instructions

-It might help to use the background note and methodology as a guide to interpret the concepts and notions presented in this questionnaire.

-We advice you to complete this questionnaire in google chrome or Firefox, as Internet Explorer sometime seem to give errors.

-Please try to be as complete as possible, but do not worry if there is no answer to a question. If you have tried to gather as much information and could not find it, you can skip the question.

-You do not need to fill in on whole questionnaire at once. You can stop the questionnaire any time you want and continue later.

-In the end you will be guided back to the starting page in order to submit a next practice.

Good luck!

Contact details

*1. Could you please provide us with your contact details?

Name:

Organization:

Country:

Email address:

Telephone number:

Type of practice

To simplify the search for RRI promising practices, we have categorized some possible types of practices that you may encounter. These are:

Tools (for instance games, training modules, protocols, guidelines or public engagement methods that are used in order to support RRI processes or to reach RRI outcomes).

Projects (for instance research projects, citizens' initiatives or agenda setting projects that include one or more RRI process requirements or outcomes).

Programmes (for instance regional, national and/or international policy programmes or societal dialogues that include RRI process requirements or outcomes).

Organizations (for instance companies, enterprises, foundations, governmental bodies, administrations or initiatives that have mainstreamed RRI process requirements and outcomes).

It may very well be the case that you would like to describe a practice that fits none of the above. Please feel free to tick the 'other, please specify' box.

*2. Please indicate what kind of RRI practice you wish to describe?

- ☐ Tool
- ☐ Project
- ☐ Programme
- ☐ Organization
- ☐ Other

If other, please specify

Project

*13. What is the name of the project you are going to describe?

14. Who is the initiator / developer / partner of this project?

Initiator	
Developer	
partner	

*15. Please provide the contact details of the person that can provide the most information about this project and that we could approach for further details.

Name:	
Company/ Organization:	
Address 1:	
Address 2:	
City/Town:	
Country:	
Website:	
Email Address contact person:	
Phone Number:	

16. What are the launch date and the end date of the project, if applicable?

	DD	MM	YYYY
Launch date	/	/	
End date	/	/	

17. Please specify which stage(s) of the research and innovation process have been executed.

- Exploration
- Development
- Implementation
- Evaluation

*18. Can you please give a short description of the project and reflect on the following questions?

What are the aims of the project?
What activities are planned to reach the aims?
What results have been realized so far?

19. Has the project been evaluated?

- Yes
- No

Other (please specify)

20. If the project has been evaluated, please summarize the main findings (max.250 words).

21. Does the project address any of the following policy agenda's?

- Public engagement
- Ethics
- Science education
- Gender
- Open access
- Governance

Other (please specify)

22. What is the geographical scale of the project?

- Local
- Regional
- National
- International
- Global
- Unknown

Other (please describe):

Process requirements 1: diversity and inclusion

Diverse and inclusive RRI processes should call for the involvement of a wide range of stakeholders in the early development of science and technology, both for normative democratic reasons and to broaden and diversify the sources of expertise and perspectives. In this respect, inclusive practices should lead to diverse practices. In reverse, diverse practices are more likely to be inclusive.

51. Please indicate in which stage which of the stakeholder groups were involved (only tick the boxes that apply, if there is no stakeholder involvement, you can just leave it open).

	Exploration stage	Development stage	Implementation stage	Evaluation stage
Policymakers	☐	☐	☐	☐
Civil Society Organisations	☐	☐	☐	☐
Business and Industry representatives	☐	☐	☐	☐
Researchers and innovators	☐	☐	☐	☐
Education community	☐	☐	☐	☐

Other (please specify)

52. How did the practice involve stakeholders during any of these stages? Please specify per stakeholder group.

Exploration	
Development	
Implementation	
Evaluation	

53. What has been done to increase social diversity in the context of this practice (think of ethnicity, gender, socio-economic class, etc.)?

54. What has been done to promote the inclusion of a diversity of research topics, portfolios and perspectives?

55. What could have been done to improve diversity and inclusion in this practice?

Process requirements 2: openness and transparency

Explanation

Openness and transparency are conditions for accountability, liability and thus responsibility. This is an important aspect for publics to establish trust in science and politics. However, more openness does not automatically lead to more trust. The information has to be tailored to the needs of stakeholders in order to make sense to them.

60. Does the practice communicate about the following issues? If so, please describe how

Goals/aims	
Procedures	
Expectations	
Progress	
Research data	
Other, namely	

61. Which stakeholders are able to access information about the following issues?

Goals/aims	
Procedures	
Expectations	
Progress	
Research data	
Other, namely	

62. Does the practice make a specific effort to tailor information for stakeholders such that it is useable and understandable? If so, please describe how.

63. What can be done to improve openness and transparency in this practice?

Process requirements 3: anticipation and reflexivity

Explanation

Anticipation both concerns understanding how the present dynamics of research and innovation practices shape the future, and envisioning the future. Therefore, one enables oneself to act on future challenges. In order to act adequately and be open to changes in direction, also reflection is required. This reflection concerns both definitions of the problem(s) at issue, commitments, practices, and individual and institutional values, assumptions and routines.

64. What has been done in this practice to anticipate possible intended and unintended consequences (both positive and negative, i.e.benefitis and risks)?

65. Describe if and how the practice reflects on risks, benefits, values and purposes of the issues and/or stakeholders that this practice seek to address. What is the result of this reflection?

66. Does the practice reflect on existing beliefs and ways of thinking? If so how?

67. What could have been done to improve anticipation and reflexivity in this practice?

Process requirements 4: responsiveness and adaptive change

Explanation

Responsiveness means responding to emerging knowledge, perspectives, views, and norms. Responsiveness is a condition for adaptive change. RRI requires a capacity to change or shape existing routines of thought and behaviour but also the overarching organizational structures and systems in response to changing circumstances, new insights and stakeholder and public values.

68. Does the practice invite stakeholders to open up to each other in such a way that they are starting to see each other and their needs, concerns, perspectives? If so, in what way?

69. Does the practice react on these stakeholder needs by implementing changes in existing structures and systems? If so, how?

70. Is the practice sensitive to changing external factors? And does the practice react to these changing external factors? Please explain.

71. What could have been done to improve responsiveness and adaptive change in this practice?

Outcomes

Based on literature about responsible research and innovation, we have developed a thematic categorization of RRI outcomes. The outcomes of RRI are divided in three categories:

1. Learning outcomes
RRI should lead to empowered, responsible actors across the whole range of our socio-technical systems (scientists, policymakers, CSOs, businesses and innovators, educators). Structures and organisations where these actors function should create opportunities for and provide support to actors to be responsible, ensuring that RRI becomes -and remains- a solid and continuous reality.

2. R&I outcomes
RRI practices should strive for ethically acceptable, sustainable and socially desirable outcomes. Solutions are found in opening up science through continuous, meaningful deliberation with societal actors. In the end, the incorporation of societal voices in R&I will lead to relevant applications of science.

3. Solutions to societal challenges
Today's societies face several challenges. The European Commission has formulated seven 'Grand Challenges' as one of the three main pillars of the Horizon 2020 programme. In order to support European policy, R&I endeavours should contribute to finding solutions for these societal challenges, which are:

-Health, demographic change, and wellbeing;
-Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bio-economy;
-Secure, clean and efficient energy;
-Smart, green and integrated transport;
-Climate action, environment, resource efficiency, and raw materials;
-Europe in a changing world - inclusive, innovative and reflective societies;
-Secure societies - protecting freedom and security of Europe and its citizens.

72. Which of the outcomes:

- Are formulated in the aims?
- Have been explicitly addressed during the practice?
- Have been reached?
- Have been evaluated?

	Formulated in the aims	Explicitly addressed	Reached	Evaluated
Engaged publics				
Responsible actors				
Responsible institutions				
Ethically acceptable R&I				
Socially desirable R&I				
Solutions to societal challenges				

Which societal challenge(s)?

73. What could have been done to improve the outcomes of this practice?

74. What lessons can be drawn from this practice?

75. To what extent are the lessons and experiences accumulated in the practice transferrable to other practices or contexts? Please explain.

76. Is there anything else you would like to add regarding outcomes?

SWOT

Now that you have submitted a description of the practice, we invite you to make a summarizing SWOT analysis of the RRI practice you are addressing.

A SWOT analysis (alternatively SWOT matrix) is a structured planning method used to evaluate the strengths, weaknesses, opportunities and threats involved in an RRI practice. A SWOT analysis can be carried out for a tool, project, programme or organisation. It involves specifying the objective of the RRI practice and identifying the internal and external factors that are favourable and unfavourable to achieve that objective.

Strengths: characteristics of the R&I practice that give it an advantage over others. Weaknesses:
characteristics that place the R&I practice at a disadvantage relative to others Opportunities:
elements in the environment that the R&I practice could exploit to its advantage Threats:
elements in the environment that could cause trouble for the R&I practice

We are curious to know what you think works well in this practice and what could be improved. Please rely on your own judgment in doing this. If you lack information in order to make the assessment and provide answers you can contact an expert.

	POSITIVE/HELPFUL to achieving the aim	**NEGATIVE/HARMFUL** to achieving the aim
INTERNAL factors of the RRI practice	**Strengths** Things that are good now - maintain them, build on them and use as leverage	**Weaknesses** Things that are bad now - Remedy, change or stop them
EXTERNAL factors of the RRI practice	**Opportunities** Things that are good in the future - prioritize them, capture them, build on them and optimize	**Threats** Things that are bad for the future - put in plans to manage them or counter them

SWOT questions

77. What do you think are the strengths of this practice?

78. What do you think are the weaknesses of this practice?

79. What do you think are the opportunities of this practice?

80. What do you think are the threats for this practice?

81. You have now come to the end of the questionnaire.

If there is any topic that has not been mentioned before but that you do consider important for the practice, please mention this below.

Annex 3 Excluded practices

Name	Leading organisation	Practice type
Centre for the Promotion of Science	Ministry of Education, Science and Technological Development	Organisation
Women go digital	The General Secretariat for Gender Equality - Ministry of Interior	Project
Responsible Industry	De Montfort University, Leicester	Project
SP12 - Ethics and Society (Human Brain Project)	Human brain project	Project
Sparkling Science	Federal Ministry of Science, Research and Economy	Programme
SOCIOTAL	Institute for Communications Systems, Faculty of Engineering and Physical Sciences, University of Surrey	Tool
Science.lu	Fonds National de la Recherche Luxemburg	Tool
Expert Systems for Decision Making of Plant Protection by Harmfulness Economic Standards	Crop Research Institute	Project
RVP - Educational Program Framework	Ministry of Education	Tool
BioSense	University of Novi Sad	Organisation
ELJABR	University of West Bohemia	Project
The Health and Social Observatory	the Joint College of the Brussels-Capital Joint Community Commission and the Permanent Delegation of the Province of Brabant	Organisation
Agora Scienza Centro interuniversitario	The University of Torino	Organisation
Ustanova Hia eksperimentov	Ustanova Hiša eksperimentov	Organisation
Communicating Science Project	Slovenian Research Agency (ARRS)	Project
UGO Certification	Centre for Innovation and Economic Development	Tool
PICRI	Region Ile de France (Marc Lipinsky)	Programme
Austrian Platform for Research and Technology Policy Evaluation (fteval)	ZSI - Centre for Social Innovation	Organisation
Innovative mobile toolkits for ship surveillance	Company Scortel	Tool
Scientific support committee of the Walloon rural network	Tr@me.scrl/Walloon Rural Network Support unit	Organisation